

2017

# ARMOUR BULLETIN





# 2017 ARMOUR BULLETIN



**Editor-in-Chief:**

LCol V.G. Kirstein CD

**Managing Editor:**

Maj B. Saint Amour CD

**Editors:**

Capt A.A. Raju CD, Itsc

2Lt A.M. Hyland

2Lt J.P.O.C. Gingras

2Lt C.F. Marshall

2Lt L. Laplante

**PRODUCED BY ALSG GRAPHICS SECTION**

**Layout and Design:**

Jennifer MacLeod

Joline Lavoie

**Project Management:**

Dale Strickland

© 2018 DND-MDN CANADA



# VISION

## S T A T E M E N T

The Armour Bulletin is the official journal of the Royal Canadian Armoured Corps. The Mission of the Armour Bulletin is to annually publish unclassified, bilingual articles of professional interest, with a view to stimulate discussion and exchange ideas concerning topics germane to the Canadian Army and RCAC.

The views and opinions expressed are those of the authors and do not necessarily reflect official Department of National Defence policy.





# TABLE

OF CONTENTS

## ■ FOREWORD

- 8 Events as seen from the Colonel Commandant's Turret
- 10 Armour Bulletin Editor-in -Chief Foreword
- 11 RCAC Sergeant Major's Message

## ■ YEAR IN REVIEW

- 14 LdSH(RC)—A Year in Review Strathcona Training Events
- 16 RDC—A Year in Review
- 18 "Winter Is Coming" Overview of 12<sup>e</sup> Régiment Blindé du Canada Road to High Readiness Training
- 20 RCACS Update

## ■ CORPS UPDATE AND DISCUSSIONS

- 24 2018 Tactical Armoured Patrol Vehicle Update
- 26 12<sup>e</sup> Régiment blindé du Canada: Employment of the Tactical Armoured Patrol Vehicle
- 28 AMS Perspective
- 30 LAV 6.0 RECCE Update: Move. Find. Communicate.
- 34 LAV 6.0 RECCE—An Operators Perspective
- 36 Owning the Night—NVS article
- 39 Combat Arms Driving and Maintenance Specialist Course (CADMS)
- 41 How did we get here? An update on the redesign of Armour Individual Training
- 44 Small Team, Big Impact—MND-NE
- 46 12 RBC During Operation Lentus 2017
- 48 United States Marine Corps Liaison Officer
- 50 NATO Allied Land Command
- 52 The British Army's Royal Armoured Corps—The Vision, Ethos and Strategy
- 57 Maj Dulle, (Letter to the Editor)
- 58 Army Operations Course
- 64 Back on Duty—Persistent Surveillance Capability
- 67 ACSV—The Project







# FOREWORD



## 2017 ARMOUR BULLETIN

EVENTS AS SEEN FROM

# THE COLONEL COMMANDANT'S TURRET

BY | COLONEL (RET) G. ROUSSEAU, CD



Dear members and Friends of the Royal Canadian Armoured Corps,

Wow! Time flies. Already in my third year at your service and enjoying every minute. Once again, I feel privileged in providing the foreword to this 2017 Armour Bulletin. Firstly, congrats to all who have stepped up to the plate to populate this eclectic compilation. Your articles, analysis, reports, letters etc.. have hit the mark and reflect your engagement to improving our profession. Daunting as it may have been to voluntarily place yourself in a discourse with a discerning readership, your courage and the quality of your work are well appreciated.

As stated last year: "this perennial document reminds us that another year has gone by and that much has happened in our beloved Corps. With the aim of improving our profession and conditions within, the School Commandant and his team have captured some essential elements which have/will shape the fabric of our Corps, all the while providing opportunities to promote a collective discourse. Hence, the articles provided do not constitute "finality," but rather opinion, report, and/or analysis".

Therefore, one can read and forget or (more importantly) "get engaged". I wish you all take the latter route. Remember! "No one person has monopoly of thought". Whatever opinion you may have, don't keep it to yourself, share it!

Beyond this year's bulletin, it is with much anticipation that I look forward to the challenges 2018 will bring us. As always the professionalism, resilience and the determination of our membership will ensure that our Corps

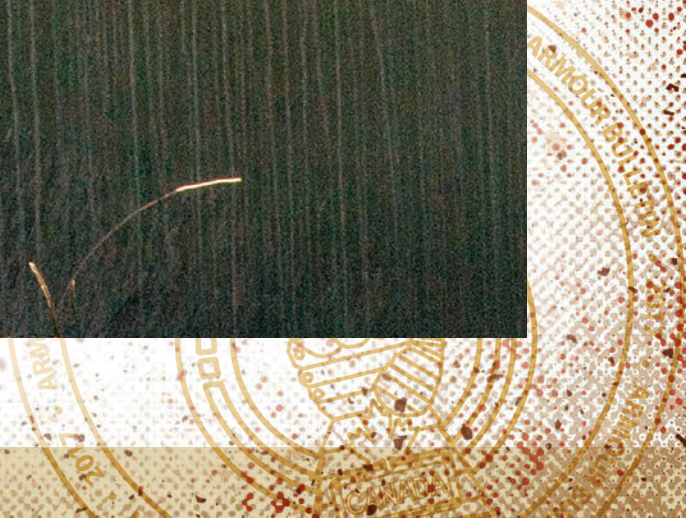
maintains its favourable reputation throughout the Canadian Forces and continues to flourish as a key partner within the Army. Among our top priorities is the work being pursued to regain/maintain our presence in command of deployed battle groups. It must never be undermined/understated. Additionally, the many initiatives being aggressively undertaken to facilitate Reserve capability integration to the Active component must "stay the course" regardless of the regional challenges. The many visits and discussions I had this year confirms that we are on track. The successful TAPV capability deployment will do much to ensure uniformity in training, standards, as well as affirm interoperability within the Corps. These and so many other issues should find a place in future bulletins.

On your behalf I send my sincere congratulations to the School Commandant and his team for producing yet again "a quality Bulletin". I am looking forward to reading your follow-on accolades, rebuttals, comments and/or suggestions.

Finally, as always I encourage you all and particularly the senior leadership of our Corps to sponsor and/or produce an article in the 2018 Edition and/or future Armour Bulletins.

Good Reading!  
Worthy!

Georges  
Colonel (ret) G. Rousseau, CD  
Colonel Commandant



A NOTE FROM

# ARMOUR BULLETIN EDITOR-IN-CHIEF

BY | LCOL V.G. KIRSTEIN, CD



Members and friends of the Corps, as a long time reader of the Armour Bulletin, I can't tell you what an honour it has been to have a hand in putting this year's edition together. The articles submitted and the discussions I have had with the authors and the editorial team were a reminder of not only the intellect of our members, but the passion that we have for what we do.

Over the last number of years the Bulletin has looked forward, past the close fight and out to changes that would affect us on the horizon. Many of those doctrinal and training changes chronicled in previous editions have now happened and some of the new equipment has arrived. So when we built the Bulletin this year, we ran with the theme "where are we now?" with the aim of looking at the impacts that the new vehicles, different training concepts and adjusted doctrine have had on us and how we, as members of the Corps, are adjusting to the here and now.

In reading the updates from the units and the articles, you will quickly realize that we have extremely busy units and a bunch of new equipment that has either been recently delivered or is coming on line in the next few years. We're punching well above our weight on operations and we're re-investing in our soldiers' training. So while it is a challenging time to be in the Corps, it's also an exciting time.

I would like to thank all the contributors to the Bulletin this year. Without your willingness to devote your time and efforts to the profes-

sional development of our Corps, the Bulletin would not exist. Special thanks to LCol Farrer of the Royal Lancers for his insight into the vision, ethos and strategy of the Royal Armoured Corps. The ability to compare and contrast how we and other countries approach comparable problem sets and challenges can only make us all better.

I hope you all enjoy the articles in this year's Bulletin, and challenge you to either rebut or add to the discussion in next year's edition. Worthy!

A handwritten signature in black ink, appearing to read 'V.G. Kirstein'.

*LCol V.G. Kirstein, CD  
Editor-in-Chief*

A WORD FROM THE

# DEPUTY CORPS SERGEANT MAJOR

BY | CWO L.M. TAYLOR, MMM, CD



I am honoured and more than a little surprised to be writing the forward for such an auspicious copy of the Armoured Bulletin. Had someone told me this would be required a short 3 months ago I never would have believed it. In retrospect I should not be surprised because as the Royal Canadian Armoured Corps School Regimental Sergeant Major, I get to see all aspects of the Corps. As the Deputy Corps Sergeant Major, I have already been involved in Corps issues.

For me 2017 was a year of remembrance marking the 100<sup>th</sup> anniversary of tank battling tank in since the First World War. Although this war was one of the most devastating in Canadian history, it was also the dawn of the Tank Corps. While tanks were created to combat trench warfare, by the end of the war, it was common to see tank-on-tank battles. These events formed the basis for the Armoured Corps we know today. As I observed the implementation of the Tactical Armoured Patrol Vehicle (TAPV), I could not help but reflect on the implementation of the Coyote. It did not surprise me to see the same issues arising anew. The challenges of determining how best to employ these vehicles and where they would be most effective within the Corps were common debates for the Coyote and have been restarted with the TAPV.

I recall when the Leopard I tanks were being decommissioned. This was a harsh blow to those soldiers that spent their careers as a tankier. The war in Afghanistan highlighted the need to once again reinstate the tank. The welcome addition of the Leopard II gave the Corps new capabilities as well as new challenges. These challenges continue and will require Corps cooperation to ensure resources are

well used and distributed.

A lot of interest has centered on the various international military skill competitions that now take place. I can remember when the pinnacle of these competitions was for the Canadian Army Trophy better known as CAT. Then, for whatever reason, there was a void of competitions. The reintroduction of international competitions has proven the Corps still has the ability and determination to be among the best in the world.

As the Armoured Corps stands on the brink of another transition and the Canadian Army changes to meet current and future commitments as well as new initiatives like Strengthening the Army Reserve (StAR). I firmly believe the Corps will evolve and continue to be in the forefront of the battle as it has for the past 100 years. Worthy!

A handwritten signature in black ink, appearing to read 'L.M. Taylor'.

CWO L. M. Taylor, MMM, CD





# YEAR IN

R E V I E W



A YEAR IN REVIEW

# LORD STRATHCONA'S HORSE (ROYAL CANADIANS)

BY | LT JAMES LEE

As Canada's tank regiment, 2017 was another busy time for Lord Strathcona's Horse (Royal Canadians). We completed Road to High Readiness (R2HR) training and prepared for several international operations. Most notably, Regimental Headquarters was identified as Battle Group HQ for deployment to Ukraine on Operation UNIFIER Roto 3. Recce Squadron also received the task to be the ISR asset in Latvia as part of NATO's enhanced Forward Presence (eFP) Battle Group. While these activities occurred, the remainder of the Regiment settled in for completing Individual Battle Task Standards, provid-



**ABOVE:** A Sqn combat team attack by night during Ex REFLEXE RAPIDE. *Photographer: Lt J. Horlings* **BELOW:** A Sqn lays down fire as the combat team prepares to attack an Enemy CSS position. *Photographer: Lt J.F. Lee*



ing support to Brigade training events, and supporting domestic operations.

Throughout 2017 and 2018 there were several events which required the attention of the Regiment. A Squadron was tasked with the R2HR and participated in Exercise REFLEXE RAPIDE and MAPLE RESOLVE. Additionally, the west coast was hit by devastating forest fires during the summer months of 2017. During the fires, a Squadron sized element from across the Regiment came to assist the fire lines alongside the Province of B.C.'s Wildfire Services officers for several weeks straight.

Throughout the year there were several international activities. A troop of tankers from A Squadron was sent to Chile to conduct a week of training alongside the Chilean army at CECOMBAC in Iquique. Some key benefits of the exercise were exposing a new generation to the challenges and benefits of using armour in a desert environment, as well as learning the differences between Canadian and Chilean doctrine. Recce Squadron also sent a troop abroad, to Texas to work alongside the US Army 3rd Cavalry Regiment. Acting as an opposition force during their final confirmation prior to deployment overseas, Recce Sqn's soldiers proved their mettle and had a great time. Re-connecting with the Royal Lancers (QEO) in U.K. this year, Strathcona Sergeant Tom Underwood was exchanged for Royal Lancer Lieutenant Dave Clarkson. This was a great exchange that laid crucial groundwork



**Members of LdSH(RC) search for hotspots on Op LENTUS 17-04.**

*Photographer: WO S.P. Mcloughlin*

for the eventual centennial of the Battle of Moreuil Wood in France. As part of the MW 100th Anniversary, 25 Strathconas would travel to Catterick Barracks, UK. This contingent conducted professional development with the Lancers as well as travelled to France to commemorate the battle itself. Looking forward to 2018, the Regiment is continuing branch out with small exchanges beginning with a small team of Strathconas eagerly looking forward to attending the Nijmegen March in the Netherlands in July.

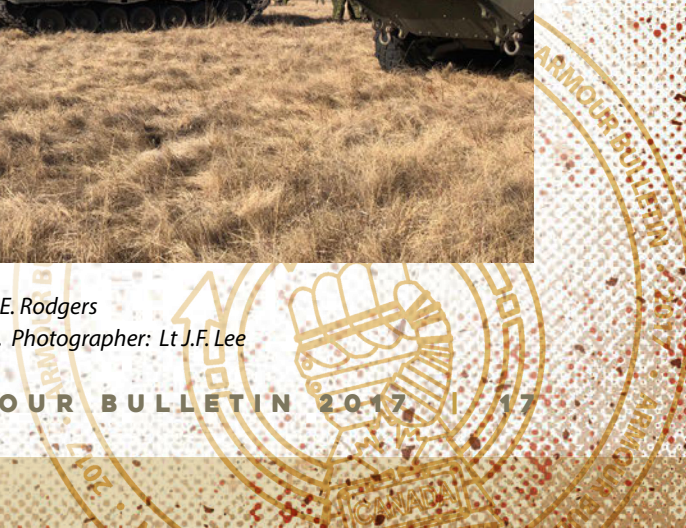
While 2017 was an exciting year for the Regiment due to our busy tempo, we have also received new equipment and truly look forward to putting it all through its paces in 2018. Thanks to new equipment such as the TAPV, the LAV 6, and the Raven unmanned aircraft system (UAS), it should be an exciting year for training. Particularly now as the Regiment looks to enter the R2HR again B Squadron alongside the rest of 1 CMBG even as A Squadron continues to stand ready to support 2 Div in any tasks that may arise.



**LEFT: Callsign Royal 1 relaxes following Ex STEELE RIFLES. Photographer: Sgt A.E. Rodgers**



**RIGHT: A Sqn prepares for the next combat team attack on Ex REFLEX RAPIDE. Photographer: Lt J.F. Lee**



A YEAR IN REVIEW

THE ROYAL CANADIAN DRAGOONS

BY | MAJOR MATTHEW JOHNSON

2017 was a high tempo year for The Royal Canadian Dragoons (RCD). The year began with sending twenty-five competitors and coaches down to Fort Drum to participate in the 3rd Squadron of the 71<sup>st</sup> Cavalry Regiment's SPUR RIDE competition. This challenging event offered us an opportunity to compare skill sets with our comrades from south of the border.

In the spring, more than three hundred Dragoons deployed to Wainwright, Alberta for High Readiness verification training. This ten week deployment provided our soldiers with an excellent training opportunity to prepare for conventional warfare tasks and saw the successful operation of The Regiment in a Battle Group context as part of Exercise MAPLE RESOLVE 17. The Royal Canadian Dragoons Battle Group proved ourselves more than capable as we completed High Readiness training.

In garrison, The Regiment took possession of 14 Tactical Armoured Patrol Vehicles (TAPV) in 2017, with many more to follow in 2018. The arrival of the TAPV also saw the opening of a new multi-user TAPV installation. The Regiment continued the TAPV implementation by conducting several "train-the-trainer" courses to teach future instructors the operation of the vehicle and weapons systems. TAPV Primary Combat Function courses for the



**Tpr Fess flanked by MCpl Hatfield and MCpl Fransen maintain the push up position as part of the preliminaries for SPUR RIDE competition in Fort Drum.**  
*Photographer: unknown*

remainder of The Regiment will begin in 2018.

In the fall, RCD held its inaugural COPELAND CHALLENGE. Building off of the SPUR RIDE competition, this mentally and physically challenging course tested the endurance, teamwork

and soldier skills of the participants. All stands were designed and run by those who had already earned their spurs in Fort Drum. The three teams of six successfully completed the course and each participant earned the right to wear the COPELAND CHALLENGE belt



**TOP LEFT:** B Squadron at Exercise MAPLE RESOLVE 17. *Photographer: Unknown* **TOP RIGHT:** General (Ret'd) Hillier speaking with WO Plumley during the inspection at the Leliefontein Parade. *Photographer: Cpl Langille* **BELOW:** Callsign 22C conducting a reconnaissance task during Exercise MAPLE RESOLVE 17 in Wainwright Training Area. *Photographer: unknown*



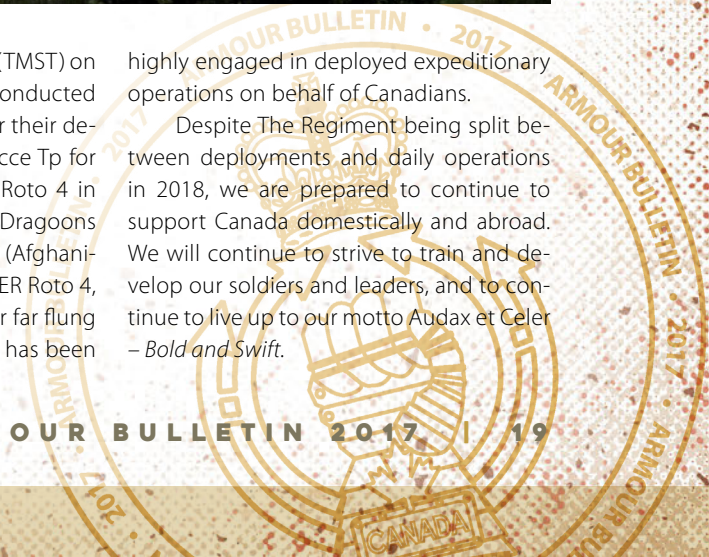
buckle. A highly competitive team also deployed as part of 4 Div's participation in Ex WORTHINGTON CHALLENGE, the Army's mounted warfare skills concentration.

The Regiment has deployed small teams of soldiers throughout the world on various operational deployments. The Dragoons took the lead as the Task Force Headquarters in Ukraine for Op UNIFIER Roto 5. The Task Force was stood up to begin their

Theater Mission Specific Training (TMST) on 20 November 2017. Callsign 41 conducted their own TMST in preparation for their deployment to Latvia as the BG Recce Tp for 2 RCR BG of Op REASSURANCE Roto 4 in early 2018. In addition, teams of Dragoons were deployed on Op ADDENDA (Afghanistan), Op IMPACT (Iraq), Op UNIFIER Roto 4, Op CALUMET (Sinai), and to other far flung locations. Overall, The Regiment has been

highly engaged in deployed expeditionary operations on behalf of Canadians.

Despite The Regiment being split between deployments and daily operations in 2018, we are prepared to continue to support Canada domestically and abroad. We will continue to strive to train and develop our soldiers and leaders, and to continue to live up to our motto *Audax et Celer – Bold and Swift*.



“WINTER IS COMING”

# OVERVIEW OF 12E RÉGIMENT BLINDÉ DU CANADA ROAD TO HIGH READINESS TRAINING

BY | LT JULIEN MÉNARD

Since this summer, the newly formed regimental command team has been training the regiment in preparation for the MAPLE RESOLVE 18 confirmation exercise. In addition to this already grueling training, there were other factors contributing to the complexity of the preparations. Firstly, the regiment had to integrate into its operations a new platform, the tactical armoured patrol vehicle (TAPV), for which no tactics, techniques and procedures

(TTPs) had been established within the Royal Canadian Armoured Corps. Furthermore, it was the first time that actual “armoured tasks” had been included in the regiment’s training since 2010, which turned out to be a little complex, but ultimately was extremely beneficial to the organization from an operational perspective. Lastly, these activities needed to be carried out in a relatively short time frame, from mid-September to mid-November, just before winter.

In short, the build-up faced many challenges from the outset, and once again the regiment’s members were up to the task.

It all began in California with the Large-Scale Exercise (LSE) during which the Regimental Headquarters (RHQ) deployed a small team in a brigade context. This exercise allowed the RHQ to establish the required bases to be robust once back in Quebec and especially in preparation for Ex LION



**LEFT:** Sergeant Bernier and his crew savouring victory over the enemy on the morning of 11 November. *Photographer: MCpl Philibert* **RIGHT:** Major Étienne Dubois, commander of the B Sqn combat team, satisfied by his troops’ performance during an assault. *Photographer: Cpl Raymond*



**LEFT: Members of 3 R22eR working on consolidation after an urban attack. Photographer: Cpl Raymond** **CENTER: C Sqn leading infantry members to the target during an assault. Photographer: Cpl Raymond** **RIGHT: A tank on C Sqn's firing range. Photographer: Cpl Raymond**

NUMÉRIQUE, an exercise in a simulator to mark the end of the fall Road to High Readiness training.

At Valcartier, from mid-September to the beginning of October, the Squadrons started their own training, first at the troop level, then as a Squadron. It was an opportunity to practise holding defensive positions and carrying out combat team attacks. B Squadron had the opportunity to train with different platoons from the 3rd Battalion of the Royal 22e Régiment in order to practise offensive operations in built-up areas and allow the light battalion to test the new MRZR all-terrain vehicle.

In October, the training increased in intensity with Ex SABRE INTRÉPIDE, which allowed members to practise a defensive position at the regimental level while combining a few reconnaissance tasks, followed by the brigaded Ex LION INTRÉPIDE. During that exercise, the RHQ was used as a battle group command post. Essentially,

each squadron commander was in charge of a combat team to clear a section in the north of the training areas during a level 5 live-fire range. Combining the regiment's flexibility and fire power and the various attachments' know-how, the Squadrons were able to quickly clear their corridor and carry out a hasty attack on a complex enemy position. Then, the combat-teams had to carry out defensive operations within a built-up area over a 48-hour period. Co-ordination between the units and strict control measures were key to the success of this complex scenario. To conclude the exercise, each commander had to attack a defensive position held by D Squadron and overthrow enemy forces outside the training areas, at least for this year.

The last day of field exercises for the regiment's squadrons was 11 November. The various squadrons and the RHQ were finally able to say mission accomplished and pack up in preparation for the next

training cycles. When they woke up in the field, the regiment members observed that the last operation of Ex LION INTRÉPIDE coincided with the first snow in those areas.

The end of November was marked by Ex LION NUMÉRIQUE, in which the RHQ supported the training of the 5 CMBG's command post as a battle group.

Therefore, the 12 RBC has implemented the necessary conditions for Ex MAPLE RESOLVE 18. In addition to continuing individual training until the deployment to Wainwright, the squadrons will maintain their expertise and participate in exchanges with our French and British affiliated units as well as deploy to the far north of Quebec.

*"Winter is here."*

*Lt Julien Ménard  
Troop 3 Leader  
B Squadron, 12 RBC*



**LEFT: The Col of the corps visiting D Sqn in its defensive position as an enemy force. Photographer: Cpl Raymond** **RIGHT: Members of 1 R22eR leading the assault within A Sqn's combat team. Photographer: Cpl Raymond**

## 2017 ARMOUR BULLETIN

A YEAR IN REVIEW

# RCACS UPDATE

BY | CAPT S. YOON

The Royal Canadian Armour Corps School (RCACS) has had another busy, but rewarding, year for 2017. The school saw many changes, starting with the change in command from LCol (ret'd) C.G. Hutt to LCol V.G. Kirstein during the summer. With the new leadership, the school participated in numerous international challenges, modernizing courses, and simultaneously running individual training courses ranging from PCF courses to a DP4 Sergeant Major course in the fall. Despite the constant battle of limited manning and resources, the endless hard work and effort put in by all members of the school has made it another successful year.

The RCACS sent teams to compete in challenges where they represented the Royal Canadian Armour Corps at the international stage. In Ft Benning, GA, May 2017, members from the RCACS competed in a grueling four day Best Scout Competition for the Gainey Cup where they were up against other nations in a series of dismounted patrolling and reconnaissance tasks. Despite not winning, the members displayed exceptional physical and mental fortitude that left the other nations with a positive impression. Soon after the Gainey Cup, another team from the school spooled up and deployed across the pond to Holstebro, Denmark, for the Nordic Tank Challenge. This challenge was hosted by the 1st Armoured Battalion of the Danish Defence Force which was made up of series of stands testing the competitors' fitness level, proficien-

cy as a crew on mounted maneuver and tank crew fundamentals, and their ability to move, shoot, and communicate within a complex tactical environment. Once again, the RCACS crew left a lasting reputation that continues to build a strong positive relationship with our allied nations. Finally, Ex Worthington Challenge (Ex WC) 2017. The RCACS, on behalf of CTC, conducted Ex WC from 23 – 29 September 2017. This pan-army event remains a critical venue designed to enable the Army's leadership and Mounted Warfare Center of Excellence

to assess the state of the fundamental mounted soldier skills, soldier readiness, and direct-fire crew gunnery of the Army. It also serves to foster relations and interoperability with Allied partners and to promote *Espirit-de-Corps* within a challenging setting. Apart from participating Canadian teams from across the country, this year we had international teams from the US, Denmark, Chile, and Poland participate in another successful Ex WC.

The Standards cell of the school has had a key role in modernizing and



**The RCACS team returns from a battle run during Worthington Challenge 2017.**  
*Photographer: unknown*

integrating new courses into the training system. The DP1 Crewman course underwent a QS/TP rewrite to better align the RegF and ARes courses and also to improve the quality of Crewman soldiers. The DP1 ATL courses, both Mod 1 and 2, have been revamped to qualify officers on both Armour and Reconnaissance tactics. The DP3 ACC course underwent a QS/TP writing board with 2 successful pilot courses conducted to date. The DP3 ATW course will undergo a similar process in 2018.

The Centre of Excellence for Mounted Warfare continued to plan, coordinate, and deliver individual training at all levels. HQ Sqn conducted five DP1 courses graduating 173 new Troopers into the Corps. On top of the DP1 courses, HQ Sqn ran an Army Direct Fire Expert course, Direct Fire Instructor Gunnery course, and multiple PCF courses. To close the year, HQ Sqn ran a DP4 Sergeant Major course for both Regular Forces and Army Reserve members, qualifying 12 and 8 NCOs respectively. A Sqn ran tank courses at various levels from DP3 ACC Tank, DP3 ATW Tank, DP ATL 1.1, and Tank PCF courses. A Sqn ran the first pilot course for the newly developed DP3 ACC, where, despite the differing platforms, all students are exposed to



**The Centre of Excellence for Mounted Warfare continued to plan, coordinate, and deliver individual training at all levels.**



both Armour and Reconnaissance theory and assessed on their abilities to move, shoot, and communicate effectively. The “common” route of these courses will teach Crew Commanders to effectively command their AFVs and to apply those skills appropriately to their task, creating more robust and flexible Crew Commanders. Across the street, B Sqn was tapped at its max running courses for both RegF and

ARes at all levels. B Sqn also ran a pilot course for DP 1.2 as part of the restructuring of the Armour Officer training that aims to ensure officers are trained in both Armour and Reconnaissance tactics. The DP 1.2 ATL, run by Course Officer Capt A.D. Tardiff, graduated 15 new officers. The arrival of the TAPV provided a new challenge to the school; integrating the new platforms into individual training. Prior to using these platforms on courses, the school was quick and effective in qualifying the instructors on both D&M and RWS Operator courses. DP1 Crewman courses have started using the TAPVs for their PCF portion and the ARes courses have started using the TAPVs for their Crew Commander, Troop Warrant, and Troop Leader courses.

2017 was a busy and challenging year with numerous changes being made at various levels. Despite the high tempo, the members of the school worked hard but also found time to relax and have social gatherings, such as our mixed dining with all our members and their spouses. Faced with many challenges, the school overcame these challenges and achieved its aims, and was also able to ensure that the Corps was provided with soldiers and officers with new qualifications.



**Leopard 2A4 fires during Leopard 2 Crew Commander Gunnery range, March 2018.**  
*Photographer: unknown*







# CORPS UPDATE

A N D D I S C U S S I O N S



UPDATE

# 2018 TACTICAL ARMoured PATROL VEHICLE (TAPV)

BY | LIEUTENANT-COLONEL BRIAN CORBETT



**Worthington Challenge 2017: TAPV and Leo 2 battle run Worthington Challenge 2017: TAPV and Leo 2 battle run.** *Photographer: Gina Crocco*

The TAPV was designed to replace the RG-31, Coyote and some aspects of the LUVW. The Armour Bulletin first mentioned the TAPV in 2009 and has been giving updates on it since. This year it has finally seen delivery to all Divisions and will be fully delivered by summer 2018, finishing in Petawawa. Initial Cadre Training was complete across the country on 15 Dec 2017, and as of 31 Dec 2017 389 of the 500 purchased were delivered to the CAF. The numbers being delivered to the Corp are, in numerical order; RCACS-49, RCD-41, 12e RBC-39 and LdSH (RC)-21, for a total of 150 TAPV's. An additional 108 TAPV's were delivered to the Div Train-

ing Centers where some were sent out to reserve units. This is consistent with the "Strengthening the Army Reserves (StAR)" directive sent out in 2017. This will both help the Army meet its operational requirements and to use it as a recruiting tool to improve Reserve numbers. Many Reserve units had members attend the ICT training for all aspects of the vehicle.

New implementations like the Interactive Electronic Technical Manuals (IETM) and the Performance Based Parts resupply contract are the first of their kind on Army vehicles. The IETM's that will be loaded onto DWAN by the end of 2018 are currently on laptops that



**TAPV with smoke.** *Photographer: Cpl Stéphane Raymond*

minimize the amount of paper manuals required. These provide the field technicians and control offices detailed direction to repair and to order new parts, speeding up repair times. The performance based parts contract is designed to put the onus of replenishment on Textron. As the vehicle is modified over time, Textron will be required to upgrade their parts contracts so the CAF only has one provider of parts to the Depots that forward parts on to the second line units, speeding up parts deliveries.



RCD ICT. Photographer : MWO Jeff Brush

There have been positive feedback from students and instructors on the mobility that can be achieved with this four wheel vehicle. Crewmen, ever wary of non-tracked vehicles, have seen that this one has proven to go many places that other wheeled vehicles have not. There has also been good feedback from the first Armour Crew Commanders Course that took place in the fall of 2017. During the course that used three different vehicles, it was reported that “the TAPV required the fewest recoveries, and when recovery was required

**The TAPV required the fewest recoveries, and when recovery was required they were able to recover within the troop**



TAPV leads the outgoing Cmdt off parade. Photographer: Cpl Genevieve Lapointe



Four TAPVs. Photographer: Sérgent Sébastien Frechette

they were able to recover within the troop”. “There were very few mechanical issues with the vehicle. Mechanically it proved itself to be fairly reliable”.

The TAPV project purchased two years’ worth of ammo to provide ICT and Steady State training across the CAF. The Corp, being the experts of Firepower and Movement, is conducting most of the Steady State training across the country to all users. This will allow units to look forward and be prepared to deploy the TAPV on whatever Operation comes next.

The next step for the vehicle is the integration of the WES system to the TAPV Information System (TIS). This will allow more realist training during EX MAPLE RESOLVE in the spring of 2019.

12E RÉGIMENT BLINDÉ DU CANADA:

# EMPLOYMENT OF THE TACTICAL ARMoured PATROL VEHICLE

BY | LT GABRIELLE ARCHAMBAULT

The Tactical Armoured Patrol Vehicle (TAPV) platform first arrived at the 12eRBC in early 2017. Since its integration, the new vehicles have been used in various contexts and under different weather conditions. Many tests have been conducted by members of the Regiment in order to fully understand the strengths and weaknesses in operational use of the TAPV. The 12eRBC was the first unit to employ the TAPV on operation during the floods in several regions of Québec during OPERATION LENTUS (Op LENTUS) in spring 2017. The TAPV proved to be an effective ve-



TAPV at Intersection B Sqn established in a defensive position around Camp Dubé for Ex LI 17. *Photographer: Cpl Stéphane Raymond*

**The TAPV proved to be an effective vehicle for domestic operations during the crisis.**

hicle for domestic operations during the crisis. Its height and maneuverability helped the troops on the ground during the evacuation of civilians from their homes, which, overall, positively impacted the success of the operation.

The TAPV was also employed during EXERCISE LION INTRÉPIDE 17 (Ex LI 17) in the fall of 2017. Two troops of four TAPVs were formed at the regiment (one in A Sqn and one in B Sqn). The troops used the new platform for over a month and a half in the field to fully test its capabilities under different tactical

scenarios as well as different weather conditions. The scenarios ranged from tactical security tasks such as convoy and VIP escorts, vehicle and traffic control points, to conventional offensive and defensive operations. Training was first conducted at the troop level. Then up to battle group level on the road to high readiness training. Throughout the exercise, the TAPV overall was effective, though, that being said, certain technical weaknesses were observed. The TAPV is a great vehicle for tasks such as convoy escorts and vehicle and traffic



**TAPV on overwatch. A Sqn preparing defensive positions for Ex LI 17.**  
*Photographer: Cpl Stéphane Raymond*

control points, but less effective for tasks conducted in densely wooded areas. Crew commanders using this platform have adapted their way of operating in the field in order to ensure mission success.

The TAPV troops were certified on level 3, 4 and 5 ranges as part of Ex LI 17, which enabled crews to have multiple opportunities to adapt to the new vehicle. Crew commanders and gunners remained flexible and resourceful to ensure

they could successfully complete their commanders' intent. At the end of Ex LI 17, members that used the new platform took part in a working group in order to assess problems and solutions with regards to any technical or tactical aspects of use for the TAPV. The discussions around the working group have permitted crew commanders to develop new solutions for frequent issues that came up during training.

The main takeaway has been that the

**The main overall takeaway has been that the TAPV is very much a crew vehicle.**

TAPV is very much a crew vehicle. Where a Coyote crew commander can control their vehicle on their own, a TAPV crew commander needs to rely on all members of his crew to help in order to ensure proper and safe operation. The platform remains new and members still have a lot to learn. Several opportunities in the future will enable the troops to continue training on the TAPV and enable them to continue to develop their skills.



**Two TAPVs driving on road. A Sqn conducting delay operations for Ex LI 17.** *Photographer: Cpl Stéphane Raymond*

## 2017 ARMOUR BULLETIN

AMS

# PERSPECTIVE

BY | LCOL NEIL CAMERON (RCD)



So....

*Did you ever wonder where the equipment, training, and infrastructure that the Corps uses to generate usable military capability for the Canadian Army comes from?*

*Did you ever receive new equipment or training and wonder what decisions lead to its purchase/implementation?*

*Have you ever muttered that you could buy better-issued equipment?*

If you have answered yes to any of those questions, then you may be a potential candidate for the Department of Applied Military Science (AMS), and, more specifically, The Army Technical Staff Officer (ATSO) Program and The Army Technical Warrant Officer (ATWO) Program at the Royal Military College of Canada. There are more selection criteria, but interest is a critical aspect.

Essentially, the programs educate candidates in military science and technology as well as management and planning, so that the Canadian Army can effectively generate military capability.

Both programs involve academic, as well as practical military components. The aim of the programs is to produce Officers and Warrant Officers that have a broad base of knowledge in science, technology, and management, and who have the ability to apply that knowledge as part of the team that conducts the capability development of the Canadian Army.

The AMS programs consist of a mix of formal lectures, group discussions, lab work, seminars, demonstrations, diverse case studies, exercises, and field study trips. Students complete a research project based on current or future operational requirements, equipment projects, and active areas of research and development.

Some of the subjects covered are as follows:

- Communication and Information Systems,
- Battlefield Surveillance Target Acquisition Systems,
- Weapons Systems,
- Vehicle Systems, Survivability and Mobility,
- Defence Management in Canada,
- Decision Analysis,
- Probability and Statistics,
- Modelling and Simulation,
- Systems Engineering,
- Logistics Engineering,
- Critical Thinking,
- Chemical Biological Radiological Nuclear Defence, and
- Military Human Factors/Ergonomics.

During field study trips, students visit military units, industry, and research centers in both Canada and the US (from Suffield to Aberdeen and Gagetown).

In essence, the AMS programs provide Canadian Army members with the skills and knowledge needed to understand the impact



**October 2017, students conducting pistol trial exercise at CFB Kingston. Photographer: WO S. Marshal / WO L. Pivonka**



**Left: May 2017, conducting a foreign weapon range. Photographer: MWO M Raymond** **Right: October 2017, exploring the RCEME school foreign and cut-away weapon vault during the South-west Ontario Field Study Trip.**

*Photographer: WO S. Marshal / WO L. Pivonka*



and benefits of new capabilities on doctrine and operational concepts, how to define requirements, the mix of equipment

/ training / infrastructure and support that will enable capability development, and how to interact with the many organiza-

tions involved in Government procurement.

Graduates from the programs are employed primarily in the Directorate of Land Requirements, as part of the Army Staff, in Tech Adjt positions, at the Canadian Army Trials and Evaluations Unit. However, the knowledge gained can be used productively used in most of the Corps' positions.

Every year, a CANFORGEN is published in early fall for candidate selection. Those who identify themselves as interested must be supported by the Corps leadership and undergo a selection board, which usually happens in December. So, if you're interested: talk to those who have done the program, read the CANFORGEN, identify yourself, and prepare to learn something new and outside the tactical realm.



**Left: October 2017, visiting Suffield to participate in live CBRN agent training as part of the CBRN course. Photographer: WO S. Marshal / WO L. Pivonka** **Right: Visiting ATESS in Trenton, discussing the design, construction, and testing of the Griffin side gun mount and gunner's seat. Photographer: WO S. Marshal / WO L. Pivonka** **Below: Photo 5-June 2017, visiting Gruntworks as part of Marine Corps Systems Command.**

*Photographer: MWO M Raymond*



#### About the author

Major Neil Cameron (RCD) is currently the Chief Instructor and Directing Staff of the Department of Applied Military Science, Royal Military College of Canada

## 2017 ARMOUR BULLETIN

LAV 6.0 RECCE UPDATE:

MOVE. FIND.  
COMMUNICATE.

BY | CAPT WALTER BRYAN

**INTRO:**

As explained in the two previous editions of the Armour Bulletin, the LAV Reconnaissance and Surveillance System (LRSS) Project awarded a \$624 Million Contract to General Dynamics Land Systems Canada (GDLS-C) to integrate the winning system bid from DRS Technologies into the LAV 6.0 platform. The LRSS Project will produce 66 dually-capable LAV 6.0 RECCE to replace 141 Mast and Remote Coyote. From an Army perspective, the Project continues to move forward under the watchful eye of **Maj Frank Lozanski, CD, MSc, RCD** who remains as the Project Director.

The LAV 6.0 RECCE variant has structural modifications that include a partial raised back deck that will accommodate the mast and mounted sensors. All are stowed under armour and available for deployment with minimal preparation. There are segmented hatches that provide continual armour protection for the rear of the vehicle, whilst the mast is stowed or raised. The shifted personnel door on the ramp optimizes access to the rear compartment. Sensors include a High Definition (HD) Day, Short Wave Infrared (SWIR), and Medium/Long Wave Infrared (IR) Imagers and an improved MSTAR v6 Radar. This enables the LAV 6.0 RECCE to find targets at a far superior range than the Coyote and other sensor systems.



The Laser Range Finder (LRF)/ IR Laser Pointer (LP) combined with Global Positioning System (GPS) and Inertial Navigation Unit (INU) provides accurate distance information and allows the crew to point out targets for other elements to prosecute. Additional and upgraded communication systems will enable the LAV 6.0 RECCE to disseminate processed imagery and low level analysed data through the Tactical Battlefield Management System (TBMS) and system-unique software that incorporates the Sensor Command and Control Planning Suite (SC2PS).

**CAPABILITIES:**

The LAV 6.0 RECCE's purpose is to move tactically throughout the battlefield to gain information about the enemy and



terrain and deliver it to the people that need it. It is a vast improvement over the COYOTE it is replacing. The LAV 6.0 RECCE inherits the LAV 6.0 protection of the Double-V hull and Height Management System, designed to defeat or minimize the effects of an anti-armour mine blast. With the Caterpillar C-9 450 HP Diesel Engine, seven-speed transmission and Generation 6 hydro-pneumatic suspension, the LAV 6.0 RECCE is more than capable of supporting 65,000 lbs gross vehicle weight across the battlefield. The LAV 6.0 RECCE will retain the LAV 6.0's Lethality in the form of the 25mm Bushmaster and an upgraded Fire Control Systems incorporating a new Turret Day Sight-Laser Range Finder (TDS-LRF) which will greatly improve the probability of engagements with a first-round hit.

In addition to upgrades to the basic LAV 6.0 platform, the RECCE variant has many new reconnaissance and surveillance capabilities. Each LAV 6.0 RECCE will be capable of **both Remote and Mast operations** with fully stabilized sensors mounted on the mast that allow **On-The-Move use of those EO sensors**. The 200 metre Remote cable reel is integrated and has a powered retract. The cable reel will have constant connectivity to allow the operators to quickly dismount, lay out the 200 metre cable, and maintain communications with the Operator Control Station (OCS) in the vehicle via the cable. The mast is a construction of composite telescoping



tubes and will raise the sensor suite up to 10 metres above the ground in static positions. With the LAV 6.0 RECCE's OCS, the Surveillance Operator (Surv Op) will have the ability to operate up to two full EO systems and one Radar concurrently while stationary, if the need should arise. The stabilized mast Gimbal houses all four sensor pods, and has a GPS and INU within. This will allow the Surv Op to scan sectors of observation while on the move with the sensors raised from three to five metres above the ground. The IR LP provides the ability to indicate targets as far away as 10 km to anyone with night vision devices. The MSTAR v6 Radar can **Detect** a moving

vehicle at a range of greater than 25km. Subsequently, using HD Digital Day camera and Thermal cameras, Surv Ops will be able to **Detect** a vehicle size target at greater than 20km and Identify it at greater than 10km.

A **digitized** and **network-enabled** OCS advanced software will allow Armd Recce crews to process information gained and transmit over the various Land Command Support System (LCSS) channels. Features on the OCS are two 2Tb Solid-State Hard Drives (SSHD), the Windows 10 Operating System, two 21.5" Multi-Touch Displays, both primary and secondary hand controllers, an integrated

**There are segmented hatches that provide continual armour protection for the rear of the vehicle whilst the mast is stowed or raised.**



OCS Touch Screens

Mounted OCS Hand Controller

keyboard, an energy attenuating seat, and a ruggedized printer – we will continue to work on a cup holder, no promises!

The fully capable secondary OCS runs from a ruggedized laptop, allowing the Patrol Commander to send reports without monopolizing the primary OCS. The secondary OCS can also be tethered a short distance from the vehicle and maintain full system functionality. The Surv Op will be able cue EO sensors using the Radar and easily set up automatic scanning, reducing fatigue. The OCS will also have a host of image processing ability including fusing and blending of Day, SWIR and IR camera images

The high degree of FTL accuracy and resolution quality of image products this system can produce and store will pose special security challenges for the data and data containing devices. Removable hard drives will need crypto-like security. When the data storage devices are not being used in the field under positive control, they may need to be locked away to prevent loss or compromise.

Tactical or strategic value information captured can be sent or received in the LAV 6.0 RECCE over several different types of LCSS equipment. Each vehicle will include 2x Combat Net Radio-Enhanced (CNR-E) VHF radios, 1x UHF/VHF ground-air radio, 1x Enhanced Position Location Reporting System (EPLRS), and a **Satellite Communications On-The-Move (SOTM) system**. SOTM enables the LAV 6.0 RECCE to transmit critical information **Beyond Line of Sight (BLOS)** to essentially anywhere in the world. The basic Satellite Communication (SATCOM) capability, which was at a premium in the past, will now be mounted on every deployed LAV 6.0 RECCE. With the SOTM, the LAV 6.0 RECCE won't need to stop to aim its SATCOM antenna; thereby increasing its overall security.

The Silent Watch Battery Pack (SWBP) system will be installed in the winch pocket of the LAV 6.0 RECCE. This will provide five to eight hours of Silent Watch. Revision Military of Ottawa has developed a Li-NMC battery housed within an armoured enclosure where 10 individual battery modules

are individually controlled by the Battery Management System, so that if one module fails, the remaining nine are still functional. The SWBP will still be able to provide some functionality with only four modules active. It will be capable of starting the engine if required.

#### PROGRESS:

The LRSS Project is now fully in the Implementation Phase. There continues to be some delays due to equipment limitations that are being re-engineered to provide the approved capabilities. The individual sub-systems are currently going through qualification testing to confirm the requirements are being met. The full scale mock-ups, the LAV 6.0 Risk Reduction Unit (RRU), was built to assess human factor impacts to the OCS in particular, and is now being used to integrate all production-grade equipment. Previously there have been a couple of user working groups conducted to provide feedback on software design and equipment integration to help ensure that the final product would be easy to use,



and something that Recce soldiers will appreciate. This will continue, as selected RCACS members will participate in at least two further User Demonstrations on the RRU to provide feedback and gain further insight into the new equipment.

A Stowage Trial will provide a select few Armoured soldiers the opportunity to cram all the vehicle and crew gear into the RRU, currently slated for September 2018.

Building on the efforts of the Definition Phase, Mobility Trials are set to be conducted late in 2018 as a confirmatory test to check that design features hold up to the specifications tested during Definition. Mine Blast Testing on a surrogate vehicle will take place in 2018 to determine the effects on the LAV 6.0 RECCE system with an emphasis on crew survivability systems.

Reliability Availability Maintainability and Durability (RAMD) Trial Familiarization Training in late 2019 will give the Corps the first true taste of the LAV 6.0 RECCE's capabilities and perhaps provide an opportunity to establish or confirm initial SOPs and TTPs. Currently RAMD Trials are scheduled to commence in the winter of 2020. This will be an intensive endeavour designed to put the LAV 6.0 RECCE through its paces. It will last approximately four months and likely involve up to a Squadron's worth of soldiers, including support personnel.

Initial Cadre Training (ICT) will occur a few months after RAMD ends. This will ensure any issues found on RAMD will be resolved before fielding and Initial Operational Capacity (IOC) begin. IOC will see the LAV 6.0 RECCE ready for deployment.

### PARADIGM SHIFT

The advent of the LAV 6.0 RECCE will introduce many changes in how Reconnaissance and Surveillance will be conducted by the Corps in the future; however the LAV 6.0 RECCE is first and foremost a reconnaissance platform with a surveillance capability. Here are a few of the key considerations:

No longer will the Surv Op be observing rearward from the air sentry hatch and be available to conduct obstacle clearing drills during tactical movement. They will be gainfully employed observing arcs on the move and while halted. With the new sensor suite, the Surv Op will be an active

member of the crew while the LAV 6.0 RECCE is moving tactically. They will be able to provide better definition of close points of interest and increased early warning of hazards beyond weapon effects ranges. The effectiveness and value of the new system means information can be collected only when the Surv Op can do the job in the seat. Patrol Commanders will need to determine if the tactical situation warrants dismounting their Surv Ops to conduct Battle Drills or Obstacle Clearing Drills. The Crew Commander will now have to consider where and how to employ a very powerful observation system to best accomplish his mission while moving tactically. Surv Ops will need to be assigned arcs or areas of concern by the Crew Commander and be supervised with greater scrutiny than in the past.

### Organization/Composition of Recce Squadrons

The replacement of the COYOTE with the Tactical Armoured Patrol Vehicle (TAPV) and LAV 6.0 RECCE will necessitate a change in the composition and employment of Recce Squadrons and Patrols across the RCAC. The Corps will be able to adopt mixed Recce Patrols, Troops, or Squadrons that best suits the Operational or Administrative situation. Upon the completion of LAV 6.0 RECCE fielding, the Corps' Recce Squadrons will be roughly 3/4 TAPV and 1/4 LAV 6.0 RECCE equipped. The planned distribution, as seen below, is one Troop's worth (8 vehicles and spare) for each Recce Squadron. A current concept has a Squadron of 3 troops with each equipped with 3 mixed TAPV and LAV 6.0 RECCE patrols with the Troop HQ mounted in TAPVs.

### RCAC TRAINING PREPARATION:

There are several qualifications that RCAC soldiers will need to have prior to the Corps receiving the vehicles. We will need crews qualified on LAV 6.0 as Crew Commanders, Gunners and Drivers prior to RAMD training and testing, and of course to support fielding. Soldiers will also need to have training on both TDMS and SC2PS before RAMD and for follow-on ICT as these programs are used extensively on the OCS. ICT will follow a few months after RAMD

## The LRSS Project is now fully in the Implementation Phase.

has been successfully completed.

### CONCLUSION:

Although the LAV III has been a familiar part of the Corps for years, more LAV 6.0 are being fielded in the Regiments. The LAV 6.0 RECCE is a completely new evolution for Armoured Recce. The LAV 6.0 RECCE will possess modern technology, increasing the capability to gain information on the enemy and terrain through high definition sensors, relaying that information quickly throughout the Troop and Squadron to higher Headquarters. The introduction of the LAV 6.0 RECCE will necessitate changes as to how Recce in the Corps will operate going forward. We will have a mixed fleet and new TTPs will be needed to work with TAPV and for LAV 6.0 RECCE with Observation on the move.

This platform will serve the RCAC and the Canadian Army for many generations to come. We are working hard to get this capability fielded in a timely manner; however the highest priority is to get it right. The LAV 6.0 RECCE is the most complex, sophisticated vehicle ever to be designed and fielded for the Canadian Army. As it was for COYOTE, we will again be the envy of the Armoured Recce Community.

Move. Find. Communicate.

### About the author

Deputy Project Director  
LAV Reconnaissance and  
Surveillance System Project, DLR

## 2017 ARMOUR BULLETIN

LAV 6.0 RECCE

# AN OPERATORS PERSPECTIVE

BY | WO B.A. ROSS

Since the last LAV 6.0 Recce update published in 2015, there have been numerous delays in the delivery of the LAV RECCE 6.0 to the field forces. These delays have mainly been attributed to the failure of the mast to meet the statement of requirements.

In April 2018, a team from the RCACS traveled to London, ON to participate in a user demo of the LAV 6.0 Recce capabilities at General Dynam-

ics Land Systems Canada (GDLS-C) in London, Ontario. This user demo consisted of numerous briefings on the vehicles capabilities as well as a period of hands-on manipulation of the different sub-systems. It must be noted that not all systems were fully functional at this time, however this user demo gave the team a better understanding of the potential of this vehicle and the impact it may have on the modern battle field.

The first day commenced with detailed briefings on the capabilities of the LAV 6.0 Recce from the GDLS-C and key engineers who are working on the project. The engineers briefed the team on how the sub-systems would interact together, thus giving us a better understanding of the potential of this vehicle. Following the briefings, a demonstration was provided in the GDLS-C testing area where the engineers demonstrat-



ed the capabilities of the different sub-systems as well as permitting the team to manipulate them. My first impression was, "this is not a Coyote". The LAV 6.0 Recce will be one of the Canadian Army's most valuable assets on the battlefield. It has vastly improved detection, recognition and identification abilities. The vehicle can employ far target location and digitized communication capabilities at the halt or on the move. Due to these improved capabilities, the Armoured Corps is going to have to consider how to employ the LAV 6.0 Recce tactically. For example, employing two vehicles together may be a waste of a valuable and limited resource. I refer back to an article in the 2011 Armour Bulletin "Reconnaissance Troop of the Future" by Capt. P.L. Nicolas. In the article he presents three options regarding the future structure of the reconnaissance troop. After seeing what the LAV 6.0 Recce can deliver, I believe the best option presented is to have the troop leader in a LAV 6.0 Recce with a TAPV and two patrols consisting of a LAV 6.0 Recce and three TAPVs. This combination may be the best way forward.

The LAV Reconnaissance and Surveillance System (LRSS) mast mounted gimbal houses the colour day camera, thermal imager, Shortwave Infrared (SWIR) and a Laser Pod (range finder and a pointer) which stay mounted for storage purposes. This allows the mast to be deployed up to 10 meters within 60 secs with the optics employed. When using the MSTAR v6 Radar the deployment time will be longer, as the crew will have to mount the radar to the gimbal before full deployment of the mast. The operator control station (OCS) is very user friendly with multiple ways to interact with the equipment. The surveillance operator has a choice between using a keyboard, the mounted hand controller, touch screen monitors, or plugging in a hand held controller. The only thing missing is storage space and a table to write on. The video feeds are all shown on one screen, the selected feed (the working image) being in a larger window, with the others displayed in smaller windows to one side. A spare viewing window is available for remote feeds that could come from UAVs or other remote systems via an antenna that is mounted on the turret. The clear and sharp

images using the different sensors were effective both during the day and at night. For command and control, the system is wired into the Tactical Battlefield Management System (TBMS) so the commander can see the selected video on his screen in the turret on the TBMS and there is a "slew to" function which is controlled through the CDA to move the surveillance system to what the turret is seeing or vice versa. The commander can also sit in the back when static and use the Laptop (secondary OCS). This laptop can control the radar, although its primary purpose is to provide the crew commander, when static, with the ability to sit in the fifth occupant seat, while

**The clear and sharp images using the different sensors were effective both during the day and at night.**

the surveillance operator (Surv Op) continues with their primary duty.

The deployment of the remote system is similar to the Coyote, the crew will have to dismount the mast mounted gimbal before carrying it out on the two Molly Pack frames to the remote site. Like the Coyote, there will be two tripods, one for the radar and one for the cameras and lasers. The cable deploys out to 200m and attaches to the Remote Power Supply Controller (RPSC). There are also two 25m cables that go from the RPSC to the tripods, allowing more flexibility in the placement of the tripods.

The new surveillance system will have numerous programs that can be monitored simultaneously, overlapping images



from the sensors, the MSTAR v6 Radar, Sensor Command and Control Planning Suite (SC2PS) and TBMS. The Surveillance Operator will have a myriad of tasks beyond the knowledge level of a basic crewman, therefore it may be required to assign a more senior crewmember as the Surveillance Operator. With all this information available, fatigue from monitoring all the systems could be a major factor on the operator. It may be worthwhile considering a fifth crewmember as part of the LAV Recce 6.0 crew. This individual could relieve the surveillance operator or be employed as an air sentry. Another factor to consider is the Satellite Communications On-The-Move (SOTM) system, with this the LRSS will be able to transmit and receive information beyond line of sight to anywhere in the world. This also means that any vehicles that are equipped with the SOTM will have the capacity to receive the data feed from the LAV 6.0 Recce. SHQ and TP LDRs will need to be in either a LAV Recce 6.0, LAV 6.0 ICS+ or LAV6.0 CP in order to receive this information from the SOTM.

Unfortunately during this visit we were unable to use the LAV 6.0 Recce systems to their full capabilities, not only on the move, but also the MSTAR v6 Radar and the integrated mapping and navigation system in conjunction with the TBMS and SOTM. A future visit to GDLS-C this fall will hopefully bring more clarity and confidence in this new system, and a clear view ahead for how the vehicle will be employed.

#### **About the author**

*Army Driving & Maintenance Troop  
WO, Stds Sqn, Royal Canadian  
Armoured Corps School (RCACS)*

# OWNING THE NIGHT

BY | CAPT KEITA, DLR 5-2-1

In his 1944 work, "Thoughts on War," Captain Sir Basil Liddell Hart proclaimed that "darkness is a friend to the skilled [soldier]."<sup>1</sup> While this statement still holds true today, the reality is that it can be misleading when considering the technological advances and the preponderance of technological equipment, by all actors, at play in the contemporary operating environment. It may be more correct to say that "darkness is a friend to the skilled and properly equipped [soldier]."<sup>2</sup> The properly equipped aspect of that statement is the premise of this article. This stems from the Canadian Armed Forces' (CAF) renewed interest in the modernization of its current soldier night vision systems (NVS) capabilities. With this in mind, a short overview of the project's context, conduct, and potential key implications will be provided.

## CONTEXT

The Sensor Cell within the Directorate of Land Requirements' Soldier Systems section has been given the mandate to carry out the NVS modernization project. The aim of the project is threefold: 1) improve the soldier's ability to operate in reduced visibility conditions; 2) reduce operator payload; and 3) leverage next generation technology. The scope consists of addressing upcoming capability gaps of the in-service fleets of thermal imagers (e.g. CORAL-C), image intensification (I2) tubes (e.g. night vision goggles), laser range finders/

laser designators (e.g. PEQ-2) and combat indicators. The Canadian Army (CA) faces two key issues regarding the state of the night vision capabilities within the Surveillance: Target Acquisition and Night Observation (STANO) equipment sub-fleets. Each may have significant potential impacts on the ability to conduct operations at night. First, the increasing obsolescence (i.e. lack of spare/replacement parts or units) and age of several of the fleets will accelerate the reduction of fleet size and/or increase support costs.<sup>3</sup> Second, current in-service quantities are insufficient to meet both user entitlements and user requirements.<sup>4</sup>

Despite being in the early identification phase over the past few years, the NVS modernization project was

prioritized in spring 2017 following the release of Canada's new defence policy entitled Strong, Secured, Engaged (SSE). SSE earmarked an investment of \$33.8 billion over 20 years for 52 critical new equipment, infrastructure and information technology projects. Of the \$33.8 billion, over \$100 million is expected to be allocated to the NVS modernization project.<sup>5</sup> The SSE prescribes the requirement to equip roughly 1900 to 6500 CAF personnel on potentially concurrent deployments not including Disaster Assistance Response Team (DART) and or Non-Combatant Evacuation Operation requirements.<sup>6</sup> These numbers do not include personnel in the training system or on the road to/on high readiness, which would consist of higher numbers of personnel outfitted



with one or a combination of NVS at any one time. Two other documents having an impact on the project are Strengthening the Army Reserves (StAR) and Close Engagement. The former provides direction in terms of personnel increase, equipment entitlement increase, and regular/reserve force integration. The latter serves as the Army capstone concept ensuring the development of CA and CAF capabilities in a purposeful as well as coherent manner.

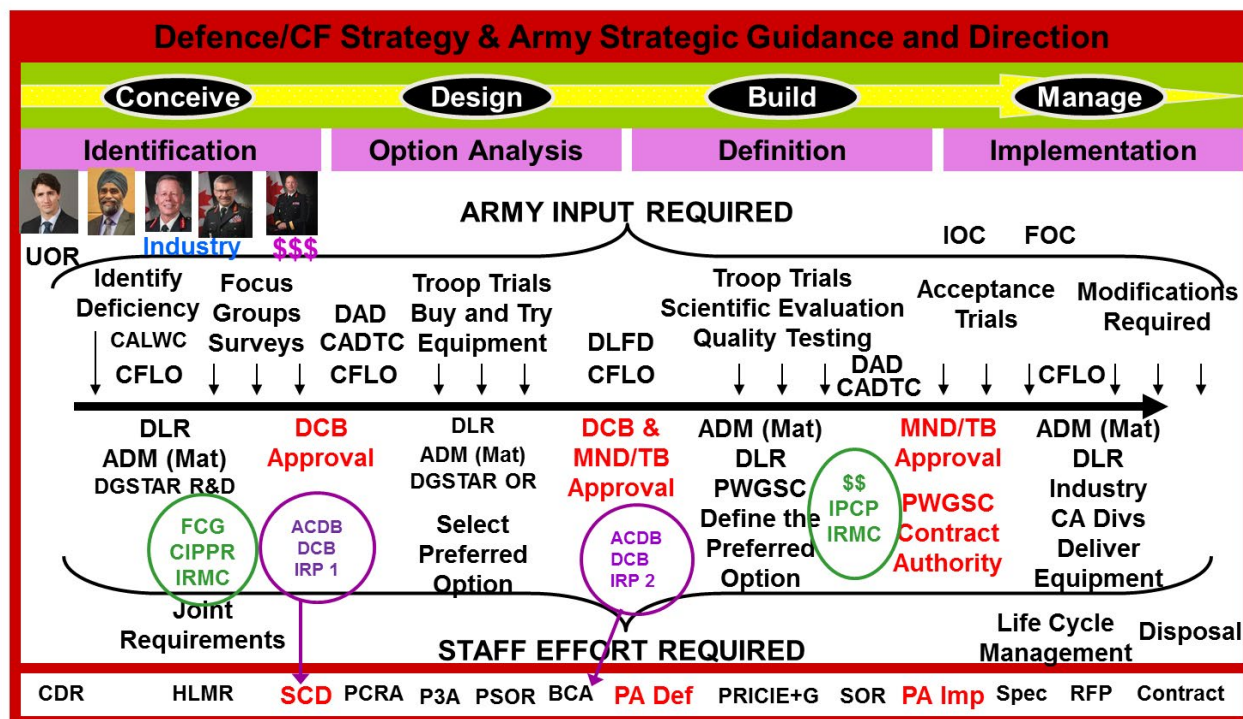
**CONDUCT**

In general, CAF projects follow a specific approval process in accordance with Treasury Board policy. There are no mandated timelines for progression through the various stages of the project approval process due to variations of a number of factors such as project complexity, capability requirement timeline and cost-capability benefit. However, some generally agreed upon

time windows have been established. According to the Defence Acquisition Guide, the project approval process is composed of five stages: 1) identification; 2) options analysis; 3) definition; 4) implementation; and 5) close out. Of note, throughout these stages the project will be subject to a number of boards and reviews by a number of entities based on level of progress (i.e. Army Capability Development Board (ACDB), Senior Review Board, Defence Capability Board (DCB), Programme Management Board, Independent Review Panel for Defence Acquisition, Treasury Board, etc). Additionally, delays may be incurred due to, amongst other reasons, stakeholder or board availability, corrections, and further research needing to be conducted. Identification is typically a one year process that deals with, but is not limited to, figuring out capability deficiencies or gaps, engaging stakeholders to better understand their

requirements, and proposing investment figures. Options analysis generally takes two years and looks at the various options available to fill the deficiency/requirement with a view of selecting the most optimal approach. Definition is approximately a two-year process where the path to implementing a preferred option is determined. During that time, funding is assigned for final consultations with industry, and a request for proposals demonstrating the latter's interest in fulfilling procurement requirements is placed. In the case of implementation and close-out stages, timeframes differ from project to project given differences in a number of factors such as scope, scale, priority, complexity, resources, and risk. Implementation begins when the contract is awarded through Public Services and Procurement Canada and carries until the project reaches full operational capability (FOC), i.e. all required

## Capability Development Continuum – Defence Management System Synchronization





goods or services have been received and users can make use of them). When FOC is achieved, the project essentially becomes a managed capability. As such, the formal process of documenting the assessment of achieved outcomes against approved objectives is undertaken. This, along with the capture of key lessons learned to help improve project management policies and practices, comprise the close-out stage.

The NVS project is currently in the identification stage. To date, a number of meetings with key stakeholders (e.g. centers of excellence, end users, maintenance personnel, defence scientists, Allies, industry, etc.) have been held. These were

aimed at gaining a better understanding of requirements, deficiencies, and current, as well as emerging, capabilities. The project is expected to go to ACBD in the spring and DCB in the fall of 2018. As per the Defence Acquisition Guide 2016, dates for the remainder of the stages are slated as follows: 1) option analysis – 2018; 2) definition approval – 2020; 3) implementation approval – 2022; 4) request for proposal release – 2022; 5) contract award – 2023; and 6) final delivery – 2025.

#### POTENTIAL IMPLICATIONS

There are a number of implications for this project. Chief amongst them is enhancing



and increasing the ability of various users to operate in low to no light conditions while remaining weight-neutral or achieving weight-loss so as to not encumber the ever-increasing soldier burden. This will provide greater flexibility to dismounted soldiers along with potentially increased quantities and better performing systems. Additionally, the systems acquired may have an impact on other projects such as the soldier's helmet mid-life upgrade. The aim is to maximize compatibility and interoperability with other CAF systems as well as those of Allies; however, this will not be done at the detriment of performance requirements expected by soldiers.



#### ENDNOTES

- <sup>1</sup> Capt M. Leslie, "Own the Night? Or shoot, Move, and Communicate Effectively in It?," *Infantry* (May-August 2000): 47.
- <sup>2</sup> *Ibid.*, 47.
- <sup>3</sup> Y. Elfeki, "Equipment strategies – Report on Surveillance Target Acquisition and Night Observation Equipment," *Endorsement of Equipment Strategies*, (Ottawa: Canadian Army, 2016): 1.
- <sup>4</sup> *Ibid.*, 1.
- <sup>5</sup> *Strong, Secure, Engaged: Canada's Defence Policy*, (Ottawa: Department of National Defence, 2017), Annex B, 101.
- <sup>6</sup> *Ibid.*, 81.



### COMBAT ARMS

# DRIVING AND MAINTENANCE SPECIALIST COURSE

BY | MWO HOLMWOOD, RCACS A D&M TROOP

In 1998, the last Combat Arms Driving and Maintenance Specialist Course (CADMS) was run at RCACS. The aim of this course was to train Officers and NCOs to conduct, organize and supervise driving and maintenance training. This required transport resources and documentation organic to the Combat Arms Units. As one of the advanced courses offered at the RCACS, it was open to Master Corporals, Sergeants and Lieutenants. This course consisted of two mods. Mod one took 26

days and taught subjects such as driving and maintenance (D&M) training while providing advice on D&M subjects. Mod two was 15 days and taught subjects including specialized Leopard D&M training.

Between 1998 and 2010, an experience gap was noticed which resulted in a decrease in fault finding skills and accurate fault reporting between drivers and vehicle technicians. Another skill lost was the ability to effectively plan troop maintenance and manage operational repair

ledgers (ORLs) in conjunction with driver training by NCOs at the sub unit level.

With the re-invigoration of tanks during the Afghanistan period as well as a greater mixture of armoured vehicles within sub-units, it became apparent that there was a need for the skills that these specialists brought to the units. The need for an Advanced Driving and Maintenance Course (ADV D&M) was crucial and needed to be re-visited. Despite key personnel within the Corps recognizing the need



**CONTENT:****The following is a rough outline of what the new course will look like;**

- A. Upon arrival students will first be qualified as a Driver Examiner;
- B. There will be a basic course on the Theory Mechanics of a 4-stroke diesel engine;
- C. Students will be taught the correct method for instructional techniques on Drivers Courses to include;
- Teaching 2 x theory lessons on a particular vehicle; and
  - Assessing Techniques for Driver Training (Students will be taught how to properly assess driver training on roads, cross-country and built up areas).
- D. Students will be taught the correct recovery techniques;
- E. Students will be taught how to prepare and supervise unit training; including
- Preparing course timetables;
  - Understand QS/TPs;
  - Understand Transport Canada Regulations – As they pertain to Drivers Courses; and
- Understand Training Safety and CAO 24-08 as it pertains to driver training.
- F. Students will learn the Duties of a Transport Supervisor; to include
- HAZMAT training;
  - FMS training;
  - Plan Squadron Maintenance Program;
  - Plan Road Moves / Rail Moves and Flat beds;
  - Understand special equipment such as FARs; and
  - Understand duties and responsibilities of unit transport organizations.
- G. Students will complete the 4 day Tank Mine Implements Instructor course (Roller, Plow and Blade)
- H. Students will be instructed on Tracks; to include
- Types of Tracks; and
  - Track Maintenance.

to re-introduce this course, it was hard to move from concept to course design. From 2010 to 2018, conflicting priorities meant that the ADV D&M course remained a good idea yet was not implemented.

Now in 2018, it has become apparent that something needs to be done to remedy the lack of operator maintenance and an increased VOR rate within the combat arms units. The Armoured Driving and Maintenance Troop at the RCACS was directed to conduct an analysis and design a new and modern CADMS course for the combat arms. At the time of publication, the new course has been designed and a formal writing board will take place in the fall of 2018 with the goal of completing the pilot course in the spring of 2019.

The creation of a new Advanced D&M course will develop an increased level of competence with respect to the organization of unit D&M responsibilities as well as support vehicle mechanics. Graduates of this course will possess improved skills of the crew instructor and impart more corporate knowledge to the students. It will also provide formal training for Transport Sergeants with the expectation that driver training will be more effective, while bolstering the VOR and improving the institutional regard for the vehicle fleet.



### HOW DID WE GET HERE?

# AN UPDATE ON THE REDESIGN OF ARMOUR INDIVIDUAL TRAINING

BY | CAPTAIN MARTIN DE SOUZA, TACTICS TROOP LEADER, RCACS

The last year and a half has seen significant changes made to RCACS foundational courses to ensure broad training which is relevant across the spectrum of armoured tasks and to eliminate the informal “tank” and “recce” career streams. At this time, only DP1 officer training and DP3 crew commander training have been “realigned.” Plans for the review of the Armoured Recce Patrol Commander (ARPC) and the DP3 Armour Troop Warrant (ATW) courses are being readied, but changes to these courses will depend on the task lists generated by the ongoing Military Employment Structure (MES) review.

#### DP1 ARMOUR TROOP LEADER (ATL)

Plans for the realignment of DP 1 officer training commenced in 2013 following a Training Needs Analysis (TNA) which determined that the existing course, the DP1 Armour Reconnaissance Troop Leader (ARTL), was not training RegF officers to the Occupational Specification (OS). It presented four different courses of action (COA) with different balances of training in armour and reconnaissance tasks on both tanks and AFVs. After considering force generation, training, and resource requirements, the TNA recommended that DP1.1 training should consist of Leopard 2 crew

commanding, and DP1.2 of reconnaissance troop leading.

Between the conclusion of the TNA and the design of the new course, RCACS Standards Sqn conducted an analysis that indicated it was feasible to conduct DP1 training that would produce an armour troop leader, qualified on both the 120mm and 25mm weapons platforms during DP1.1, while DP1.2 would concentrate on “intermediate” troop leading tactics during reconnaissance, security, and urban operations. This analysis offered the possibility of providing officers qualified on two separate vehicle platforms with exposure to the spectrum of armour tasks in the same amount of time as the TNA COA. This proposal was approved by the Army Individual Training Authority (AITA) in January 2015. The first Qualification Standard/Training Plan (QS/TP) board for the new DP1 ATL took place in early 2015 and designed a pilot Module 1 (Mod 1) course<sup>1</sup> that ran from May to August 2015. The pilot Mod 1 covered 120mm crew commander gunnery (CC Gnry), crew commanding an AFV, troop leading in the offence, and troop leading in the defence over a period of 62 days.

Following the End Course Review (ECR) process and several months of analysis, it was decided that the aim of the Mod

1 was too ambitious; it covered too much information in too short of time for the students to be proficient at both crew commanding and troop leading. Of the eleven students who started the course, only four

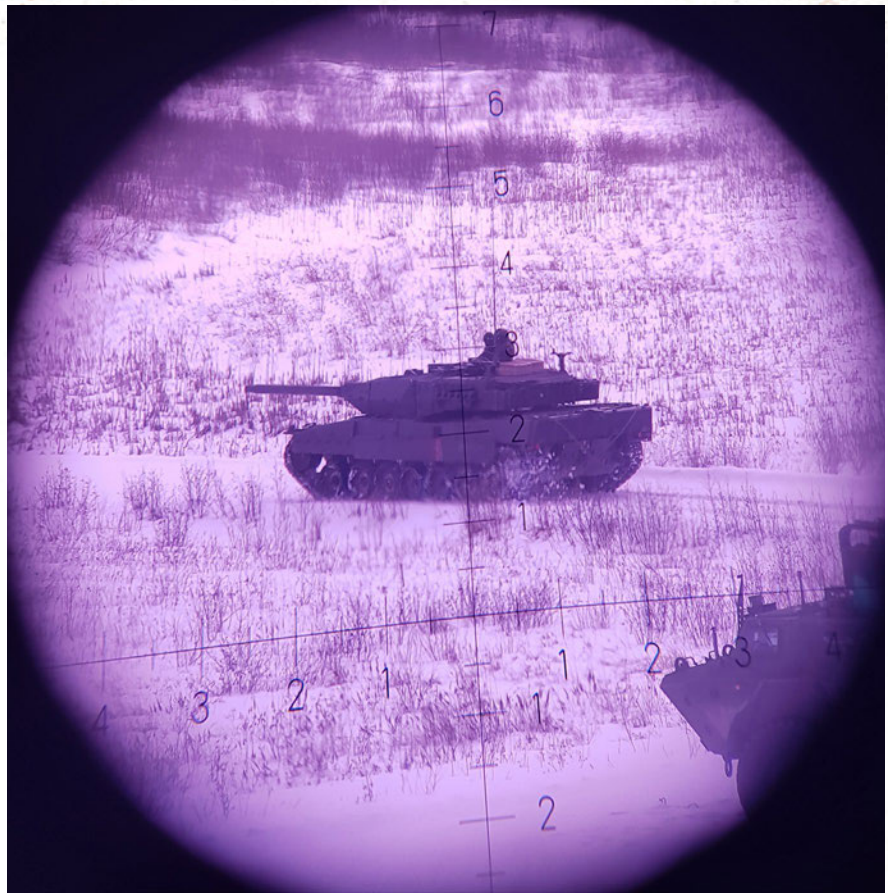
**Of the eleven students who started the course, only four were ultimately successful, of which two were previously qualified the legacy ARTL.**

were ultimately successful, of which two were previously qualified the legacy ARTL. Further, the course was unsustainable from a cost, resource, and time perspective. It cost \$30,000 more than the similar Armour

Crew Commander (ACC) Tank, and was seven days too long for the ROTP summer training block.

An interim Mod 1, without a draft TP but based on the ACC Tank, was trialed in the summer of 2016 to test whether this reduced scope was more realistic. The interim course included Leo 2 CC Gnry, Crew Commanding in the Offence, and Crew Commanding in the Defence. Sixteen candidates attempted this interim course and six were effective. Though student success was not significantly improved upon, this course did prove to be more sustainable in costs, resources, and duration than the previous pilot. These observations conformed to the original analysis and recommendations of the 2013 TNA, and ultimately shaped the work of the next QS/TP board.

The second QS/TP board was held in two parts, the first in November 2016 focused on Mod 1 training, while the second in January 2017 focused on the Mod 2. The Mod 1 was designed to run on the Leopard 2 and consists of 55 days of training which includes instruction on the C6 and communications equipment, Leo 2 CC Gnry, AFV Recognition level 1, Crew Commanding in the Offence, and Crew Commanding in the Defence. The Mod 2 was designed to be run on a turreted wheeled platform<sup>2</sup> and consists of 58 training days which includes instruction on AFV Recognition level 2, and leading an armoured troop during



traditional reconnaissance tasks and surveillance tasks. The original intent was to also include training on tactical security tasks, but the inclusion of this training would have surpassed the hard cap of 60 training days.

To date, two iterations of the Mod 1 have been run using the new QS/TP, with a third ongoing. The Mod 1 has matured into a stable course that delivers Leopard 2 qualified crew commanders able to operate in offensive and defensive operations. The pilot Mod 2 was run in the fall of 2017 with 21 students, of which 15 were successful. Some minor issues with the design of the course were identified, but the general skill focus of the course and the method of delivery were judged to be appropriate. The main changes revolve around the execution of the field training, and at what point students are tested on the performance objectives. The ECR process is ongoing and amendments to the QS/TP and courseware will be made prior to the next iteration of the course in fall 2018.

After five years of planning and trial-

ling the DP 1 ATL, the QS/TP is nearing the stage where it can be finalized and published as the officially approved version. The disadvantage to this model is that officers are not assessed on troop leading in the offence or defence. However, given the force generation, time, and resource limitations, this DP1 ATL is the best compromise, in that it produces officers qualified both 120mm and 25mm CC Gnry, who have been exposed to armour offensive and defensive tasks, as well as reconnaissance and surveillance tasks. This compromise provides a well-rounded foundation which allows armour officers to conduct tasks across the spectrum.

#### DP3 ACC COMMON

The decision to realign DP3 career progression was made in October 2016 during an Armour Corps Conference. The decision was based on the desire to remove the de facto tank and recce employment streams and to reduce unnecessary training such as formalized cross over courses. A briefing note was readied in fall 2016 which pro-

**The disadvantage to this model is that officers are not assessed on troop leading in the offence or defence.**

posed removing the ARPC course from the DP3 Crewman career progression, and the design of common courses for both the DP3 ACC and DP3 ATW. The courses would be “vehicle platform neutral and focus on the fundamentals of Crew Commanding and Troop Leading in a variety of tactical scenarios”, though it was envisioned that the RegF would be on a stabilized turret and the PRes would be on the TAPV. It also noted that the delta in specialization training would be made up through “collective training, experiential learning, mentorship, and self-development.” This briefing note was approved by Director Armoured in November 2016 and by AITA in June 2017.

The training design process started with the DP3 ACC. The QS/TP board took place from 21 June to 13 July 2017 and produced a common course for both RegF and PRes that covered both armour and recce tasks. This was no easy feat, given the need to limit training growth, to preserve a modularized version for the PRes, to teach the PRes and RegF to the same standard for each common performance objective (PO) while identifying what would be residual or supplementary training for the PRes, and to design a field exercise that applied to tanks, LAVs, and TAPVs. Ultimately, the board settled on three POs: 301- Crew Command an AFV from an Unprepared Position to an Unprepared Position; 302- Crew Command an AFV during the Hasty Attack; and, 303 - Crew Command an AFV from a Prepared Position. PO 301 was designated essential, meaning it applied to both RegF and PRes, while PO 302 was designated residual, and PO 303 was supplemental. The

RegF ACC will cover all three POs over 35 days, and will be assessed during the field exercise in the context of an armour troop (i.e. four turreted platforms). The PRes ACC will cover PO 301 over two mods, one being six days and the other twenty days, and will be assessed during the field exercise in the context of a recce patrol (i.e. two TAPV) within a troop.

A pilot course for both RegF and PRes was conducted in the fall of 2017 without major issue. The ECR process did not reveal any major flaws with the design of the course, though courseware and training delivery did require refinement. A second pilot is being run by different staff in the spring of 2018 to confirm the observations of the first course. As with any major change, there has been minor resistance by some students and staff to the idea of 25mm platforms being exercised in the armour context and to the lack of emphasis on recce skills. It must be remembered that the aim of this course is to train the skills of crew commanding, regardless of platform. The focus is thus on being able to move, shoot, and communicate as a commander of an individual vehicle during any tactical task. Students are exposed to both armoured and recce doctrine in the classroom, and they do practice some recce skills in the field, but, due to time constraints, do not conduct any recce tasks as part of the field exercise. The newly qualified crew commanders will deepen their understanding of armoured and recce tasks through collective training, experiential learning, mentorship, and self-development.

## THE NEXT BOUND

The initial timeline for the DP3 career progression realignment saw the DP3 ATW being redesigned in January 2018 and the ARPC in summer 2018. Due to the ongoing MES review, these redesigns have been put on hold, since it impacts the task lists that are used as the basis of the training design process. Thus, the QS/TP boards for the ATW and ARPC will be conducted once the MES review has concluded and the new task lists are approved. Once these boards are completed, it should take a further year or so to run the pilot courses and finalize the QS/TPs. Once the courses are realigned, the RCACS will be producing both Officers and Crewmen with the requisite knowledge and skills to operate any vehicle platform while conducting any possible task asked of them across the spectrum of armour operations.

## ENDNOTES

- <sup>1</sup> *The course redesign process also changed the terminology in usage. The DP1 ATL Mod 1 replaced the DP1.1 ARTL, and the DP1 ATL Mod 2 replaced the DP1.2 ARTL.*
- <sup>2</sup> *This requires the appropriate pre-requisite Crew Commander Gunnery course, which takes 23 days (LAV III) or 24 days (LAV 6.0).*



## 2017 ARMOUR BULLETIN

# SMALL TEAM, BIG IMPACT

BY | MAJ B.M. FLEMMING, G3 PLANS MND-NE, ELBLAG, POLAND

After long-standing cooperation and mutual support to European and North Atlantic Security in Europe since its inception decades ago, Canada's main effort for the deployment of troops in NATO missions were outside of the European theatre. These NATO expeditionary operations, where experience, knowledge, and trust were exercised in conflicts around the globe, most notably combat in Afghanistan, served to strengthen Canada's resolve and cooperation with their NATO Allies. However, with the recent shift in the European security climate, it was once again time for Canada to focus on engagement within the continent and to build on historic ties with old

allies, as well as develop relationships with newer members. To this extent, new Canadian contributions have been augmenting and populating organizations across Europe, both established and newly formed formations, from the tactical to the strategic level. Although not great in number, Canadians can be found in key positions in SHAPE, in the Joint Force Commands of both Brunssum and Naples, in the Multinational Corps and Division HQs, in training support and academics institutions, like Rome and Bydgoszcz and the National Forces Integrations Units (NFIU), and, most dramatically, leading one of the enhanced Forward Presence (eFP) Battle Groups in the Baltic States.

It was in the context of eFP that HQ MND-NE was recently stood-up and Canada, much like it did when NATO was founded, was one of the first countries to contribute and fill its assigned positions.



Commander Halle (SHAPE) visits Canadian members of MND-NE, Elblag, Poland. (Maj Fleming, Capt Molsberry, WO Bowden)

In peacetime, the eFP forces act as a deterrent for any aggression to sovereign territory of NATO members, specifically in Northeastern Europe. In the event of a crisis or conflict, they stand with their national forces partners, ready



**Maj Flemming, Capt Molsberry, WO Bowden**

to defend. In continuous cooperation and continually training with their host nation forces, the eFP forces are at high readiness and always improving on interoperability, a challenge for every multinational force. These forces include the Multinational Battle Groups in each of the Baltic States and Poland, their affiliated National Brigades, and Multinational Division North-East (MND-NE). It was in the context of eFP that HQ MND-NE was recently stood-up and Canada, much like it did when NATO was founded, was one of the first countries to contribute and fill its assigned positions.

Although only three members of the almost 300 HQ positions in MND-NE, the impact of the arrival of the Canadians was immediate and dramatic, and not just because they were the first native English speakers of the mostly Polish HQ! With members in the operations, planning, and training sections, they helped develop the HQ Development Concept and HQ SOPs, both crucial for the NATO certification of the organization that will lead to Full Capability (FC) of the MND-NE at the close of

2018. With just over a year to conduct all the staff training and participate in several major preparatory exercises, it is a very ambitious plan and HQ staff are racing to meet expectations. In addition the various staff duties, the Canadian members were able to help to better link HQ MND-NE with the Brigade HQs and Battle Groups of the eFP forces, specifically in Latvia where they could network with the Canadian led Battle Group and Latvian Brigade HQ. These improved relationships are helping set the conditions for a smoother transition when Multinational Corps North-East delegates tasks to the Division HQ over the course of the next year as HQ MND-NE makes strides toward FC.

The Armour Corps was savvy enough to secure one of these coveted Canadian positions within the HQ, and in true tanker fashion are leading the way as the Section Head of G3 Current Plans. On top of staff duties, the position also fills the role of Senior National Representative of Canada to HQ MND-NE, to include all the glorious coordination details of a satellite OUTCAN

post and the administrative joys inherent to establishing a new Multinational NATO HQ, such as MOUs, budget, travel arrangements, and the CAF support network. Despite the extra administrative duties, the job is extremely fulfilling and rewarding, most notably when your international colleagues express their gratitude and appreciation of your contributions.

Unlike some of their NATO allies with larger armies, Canada's forces are limited and the finite resources are managed meticulously. This is reflected in the contributions Canada sends to NATO, ensuring that members selected for NATO positions are well-trained, professional, and dedicated – the right people for the right job. Canadian members serving with NATO, whether it's in the eFP BG or HQ MND-NE, or higher command positions in Brunssum or SHAPE – reflect Canada's commitment to NATO in completing their duties with distinction and honour. An ocean may physically separate Canada from their European Allies, but nothing can stand between us or weaken our resolve. ADSUM!

## 2017 ARMOUR BULLETIN

# 12 RBC DURING OPERATION LENTUS 2017

BY | CAPT J.F. RICHER, 12E RÉGIMENT BLINDÉ DU CANADA

The 12e Régiment blindé du Canada (12 RBC) was JTF(E)'s immediate reaction unit (IRU) for the spring of 2017. This mandate consisted of being constantly ready to generate and employ forces for national operations at the request of the Government of Canada. Spring flooding is an annual occurrence in Quebec but is rarely as severe as it was in 2017. Last year, over 261 municipalities were affected and 5,260 homes flooded. To support the local authorities, the IRU was activated quickly and

12 RBC deployed in a few hours to the most-affected areas of Quebec.

Once liaison officers were on the ground across Quebec, it was clear that this deployment would require more soldiers than planned within the IRU. Over 650 members of B, D and CS squadrons and various attachés were deployed under the command of the regimental headquarters (RHQ) in the Ottawa area, and approximately 250 members of A Sqn and attachés, in and around Rigaud. In the Ottawa-area op-

erational zone, the regimental group was housed at the Hull Regiment and covered an area of over 300 km. The province's Ottawa-area crisis management cell and the City of Gatineau's crisis management cell were fully integrated, thus helping to optimize our response time and effectiveness. The main provincial and municipal managers quickly established a list of priorities to allow the Canadian Armed Forces (CAF) to respond as per its mandate and in the key locations as soon as forces were on the ground.

Once deployed on the ground, the 12 RBC members quickly noted the scale of the flooding and immediately assisted the locals. The CAF's priority tasks in the Ottawa area were to protect key infrastructure, evacuate residents, and transport local authorities conducting daily surveys. Next, the soldiers' daily tasks were to transport various personnel to the still-inhabited homes, monitor water levels, and conduct various tasks so that local authorities could breathe a bit. The combat vehicles on the ground during the operation were extremely useful in accessing the most-flooded areas and ensured free movement for local authorities. A large part of the operation definitely involved filling and stacking sandbags. Several thousand sandbags were filled and stacked along roads and on private



Lt Brignone's crew with one of the City of Gatineau authorities during Operation LENTUS 2017.





**D Sqn members at the Hull Regiment with Steven Mackinnon, MP for Gatineau; Stéphanie Vallée, Minister of Justice for the Government of Quebec; Maxime Pedneaud-Jobin, Mayor of Gatineau; and Brigadier-General Hercule Gosselin, Commander of the 2nd Canadian Division and Joint Task Force (East).**

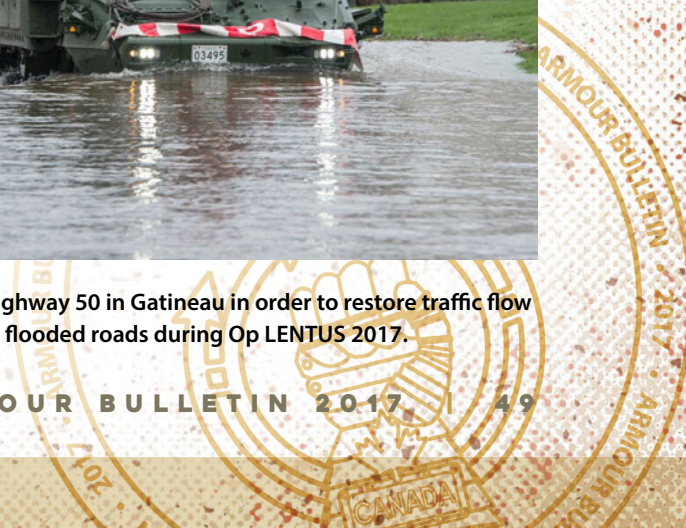
properties to contain rising waters and check the damage done to infrastructure. For example, the first thing the CAF did in the city of Gatineau was to protect a pump station that provided drinking water to the entire municipality of Aylmer. Despite the

intense physical effort required and the long working hours, as well as the hazards associated with moving around, the CAF members were rewarded on a daily basis with warm support from the residents, great co-operation from all the responders

and locals, and an intense feeling of duty accomplished. Operation LENTUS was an incredible platform to showcase the dedication and professionalism of the regiment's members, who certainly helped to boost the image of the CAF in Quebec.



**LEFT: D Sqn members working with Quebec's ministry of transportation on Highway 50 in Gatineau in order to restore traffic flow as quickly as possible on this major artery. RIGHT: 12 RBC members patrolling flooded roads during Op LENTUS 2017.**



UNITED STATES MARINE CORPS LIAISON OFFICER (WEST)

# MARINE AIR GROUND TASK FORCE TRAINING COMMAND

BY | MAJOR ALASTAIR MCMURACHY, LdSH(RC)

The first day on deck after leaping headfirst into a new liaison role at the Marine Corps Air Ground Combat Center (MCAGCC) Marine Air Ground Task Force Training Command (MAGTFTC) in Twentynine Palms, California, I asked

my predecessor, Major Dominic Behar-singh, RCD, to take me past the open-air tank hangers of 1st Tanks so I could see a tank battalion's worth of M1A1s. I was disappointed - yet amazed when the entire lot was empty as the entire

battalion (to include the echelon) was out for morning manoeuvres. There is a significant bonus to having a 1200 square mile training area behind your tank barn.

MAGTFTC is the Marine Air Ground Task Force (MAGTF) collective training wing of the United States Marine Corps (USMC) and is responsible for the massive live-fire training area in Twentynine Palms, CA, the mountaineering and cold weather center of excellence at the Marine Corps Mountain Warfare Center (MCMWTC) in Bridgeport, CA and the experimental test and weapons tactics instructor (WTI) aviation squadrons at Marine Corps Air Station (MCAS) Yuma, AZ. The USMC Liaison Officer (LNO) position falls under the MAGTF Training Director (G3) and has unrestricted access to the Training Director and the installation Commanding General (CG).

Upon arrival to "The Stumps" I observed in the overpowering 45 degree heat the USMC-led Large Scale Exercise (LSE), which included headquarters elements from II Marine Expeditionary Force (II MEF) 2nd Marine Division, 5 CMBG led by Colonel Stephane Boivin, UK 3rd Commando Brigade and the French 6th Light Armoured Brigade. The exercise coincided with a USMC Regimental live fire exercise in Twentynine Palms which enabled real-time results and provided additional EXCON



**Marine Corps Air Ground Combat C - Marines with 2nd Battalion, 3rd Marines, assault the stadium at Range 220 aboard the Marine Corps Air Ground Combat Center during Integrated Training Exercise 2-18 Jan. 30, 2018. The purpose of the ITX is to create a challenging, realistic training environment that produces a combat-ready force capable of operating as an integrated MAGTF.**

*Photographer: Pfc. Rachel K. Porter*

*Source: <http://www.29palms.marines.mil/Photos/igphoto/2001874352/>*



**Marine Corps Air Ground Combat Center - A Bell AH-1Z Viper takes off at a Forward Arming and Refueling Point at Marine Corps Air Ground Combat Center, Twentynine Palms, Calif., Feb. 4, 2018, as part of Integrated Training Exercise 2-18. The purpose of ITX is to create a challenging, realistic training environment that produces combat-ready forces capable of operating as an integrated MAGTF. Photographer: Pfc. Pfc. William Chockey**  
Source: <http://www.29palms.marines.mil/Photos/igphoto/2001874785/>

friction. Upon conclusion of the exercise it was noted during the AAR that excellent lessons were learned from an interoperability standpoint: be it signals and network integration, conflicting USMC-CA battle rhythms, or basic language and terminology between allied nations.

After LSE came the Mountain Training Exercise (MTX) 6-17 at MCMWTC, where Major Jeff Tebo and A Coy, 3 PPCLI earned mountaineering qualifications and fought alongside 2nd Marines during the final exercise across a grueling landscape in the Toyoibe National Forest. The exercise tested main and alternate HQ placement and forced USMC and PPCLI elements alike to maximize terrain usage for clear communication transmissions in order to maintain situational awareness. The A Coy final assault across a notable difficult piece of terrain earned Canada significant praise from the CO of MCMWTC and has been used as the desired standard to achieve during

subsequent MTX rehearsals.

Outside of the natural culture shock that one would receive when serving outside the nation, it became very apparent that USMC operations and exercises focus heavily on the integration of attack aviation and close air support into offensive considerations and courses of action. This comes second nature to the USMC as they have their own Marine Air Groups (MAGs) that are tailored to the MAGTF or special-purpose MAGTF (SPMAGTF) and whose Air Command Element (ACE) officers and operations chiefs are formally trained at MCAS Yuma twice a year. This trifecta of air-ground-sea integration pays off when pilots serving on B-billets (ERE) serve in battalion and Regimental HQs and can direct those planning considerations into a concise support concept for the MAGTF or SPMAGTF commander.

Although mostly associated with amphibious operations, it is noted the USMC,

by virtue of its size, task organization and mentality, is very closely aligned to the Canadian Army and Armed Forces. It is very easy to discount the USMC as a littoral amphibious assault force, but with its task-tailored organizations, similar equipment (F-18s, M777s) and focus on live fire collective training, one can quickly draw parallels to the CAF's operational units and collective training elements. The mentality of "going it alone" is slowly degrading and is being replaced by the modern USMC leader that views allied interoperability as a force multiplier and not a burden. As such, the USMC has become very open to collective training with Canadian units and has asked its CA LNO to aggressively pursue USMC-CA training opportunities with the view of interoperability with its neighbours to the north. In the words of the MAGTF-FTC Commanding General, MGen William F. Mullen III, the USMC "are open for Canadian business".

IZMIR TURKEY

# NATO ALLIED LAND COMMAND

BY | MAJOR JOHN MCEWEN, G6 COORDINATION OFFICER / CANADIAN CONTINGENT ADMINISTRATION OFFICER, LANDCOM HQ

During the restructure and realignment of NATO Headquarters in 2014, Allied Land Command (LANDCOM) moved from Heidelberg Germany to Izmir Turkey. The mission of the HQ is to be the Theatre Land Component and Land Advocate responsible for coordinating and synchronizing NATO and partner Land Forces by ensuring land domain readiness, interoperability, standardization, and competency. LANDCOM is a relatively small NATO organization with approximately 300 personnel. To this group, Canada provides a small yet mighty twelve-person contingent that is located in various influential positions, including the Chief Engineer/ACOS GEng (CA Colonel) and the Command Senior Enlisted (CA Command Chief Warrant Officer). In addition, each of the Staff Divisions has a Coordination Officer (Div Coord O) that synchronizes the divisional staff effort, and of the twelve Divisions, Canadians hold three of these positions.

This is where I come in – Upon my arrival in July 2017, I was surprised to find out that, as an Armoured Officer, I would be the Div Coord O for the G6. However, it quickly became very clear that I would be able to provide important support in several major areas. With the majority of the members of the G6 Division being technical specialists, there was a real lack of synchronized



staff effort with the rest of the HQ. So, all of that time in Kingston at the Army Staff College, being beaten with the Operational Planning Process, helped me to bring some coherence between the planning efforts of the Division and HQ. In addition, as a general staff officer I can bridge the gap between the technical speak of the division with their operational counterparts – because if I do not understand what the CIS Engineer is talking about, then the other Divisions will not either. Finally, even though the operating language of

the HQ is English, with members from all twenty-nine NATO nations and three partner nations, many are not native English speakers. As the Div Coord O I can effectively review and assist my fellow staff officers with their written work.

Honestly, the position is not very exciting; however, having the opportunity to work with Officers and NCOs of a myriad of nationalities is quite interesting. Seeing how others approach and solve problems only helps to improve our skills and abilities. In addition, one of the benefits of working in a relatively

small HQ is that you have the ability to volunteer any extra time or capacity you have to other initiatives of professional interest. My predecessor was incredibly involved in Combat Readiness Evaluations (CREVAL). This involves a team travelling to another NATO or Partner nation to conduct an assessment of their forces (usually a Division or Corps) in order to ensure standardization and operational readiness of NATO forces. For the past couple of years I have had the opportunity to work with the Info Ops community in Kingston, so I have been able to bring that experience to LANDCOM and work on STRATCOM and Info Ops related assignments. Because of the different nationalities, personalities, and individual experiences, when everything is working smoothly it is truly a team effort. Often rank becomes less important, so the opportunity to share your knowledge and experience, and continue to hone your professional capabilities at the NATO Army level, makes for a highly motivational work environment.

But like all OUTCAN postings it is not all about work. The opportunity to live and experience a different culture has been quite eye-opening. Izmir is the third largest city in Turkey with a population between 3-4 million people. Located on the Aegean

Sea, the area is steeped in history. Within a short drive of the city there are remnants of various empires (Roman, Byzantine, and Ottoman) that have settled or conquered the region. And even though Turkey is a Muslim country, they are incredibly proud

**I have never been to a more patriotic country where their national flag flies absolutely everywhere...**

and respectful of the important role their land played in the history of both Judaism and Christianity. With the historical importance of the region, it might be easy to for-

get that Turkey is actually a very young nation. The history of modern Turkey actually begins with the foundation of the republic in 1923. And I have never been to a more patriotic country where their national flag flies absolutely everywhere, as does the images of their founder and first president, Mustafa Kemal (Atatürk).

In addition, living in a foreign country is not without its challenges. For example, very few people speak any English, as it is expected (and rightly so) that foreigners coming to live in their country will learn Turkish. That being said, the locals are incredibly friendly, so armed with some basic phrases, and google translate on your iPhone, I have found that they are almost always willing to help you out. Needless to say my few short months in this country have already been a wonderful experience, and I am looking forward to all of the adventures that my remaining time affords. I encourage anyone who is looking for an interesting OUTCAN posting for them and their family to strongly consider Izmir Turkey.

Perseverance

*Major John (Johnny) McEwen  
G6 Coordination Officer /  
Canadian Contingent Administration Officer  
LANDCOM HQ*



THE BRITISH ARMY'S ROYAL ARMoured CORPS

# THE VISION, ETHOS AND STRATEGY

BY | LT COL J A FARRER, ROYAL LANCERS  
UK DS AT THE CANADIAN ARMY COMMAND AND STAFF COLLEGE



Royal Lancers Cap Badge

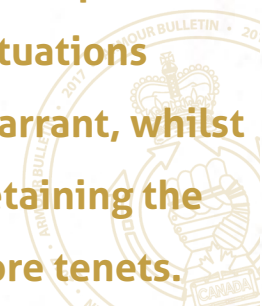
Having read and reviewed a number of the excellent articles in the previous Royal Canadian Armoured Corps - Armour Bulletin publications, it will not surprise many readers to see that the Royal Armoured Corps (RAC) of the British Army is dealing with similar and related issues. Over the last 10 years or so, many of the changes have revolved around the ownership, command and governance of the armoured capability (both armour and armoured reconnaissance), whilst maintaining the regimental structures of the RAC. The most significant change was in 2011 where the then Director RAC, and the then Director Infantry, were amalgamated to create Director Combat (which was later renamed Head of Capability (HoC) Combat, and more latterly HoC Ground

Manoeuvre). Whilst there are tangible benefits from a holistic approach to ground manoeuvre (especially in Force Development and Force Employment matters), there does exist a requirement to develop both a greater understanding outside of the RAC community, and to ensure a common view of the unity of purpose within.

The RAC is not adverse, or indeed immune, to change. In a similar vein to armoured capabilities the world over, the RAC has continued to adapt as the situations warrant, whilst retaining the core tenets. Some of these adaptations are self-initiated, however the majority are usually driven by external influences, such as (for example); responding to the needs and requirements of the wider Army and Joint Force; the changing (current and future) operating environment; changes in technology and capabilities available to the military and, to an extent, the changing demographics and national appetite in the United Kingdom. With a foundation on Challenger 2 (CR2) Main Battle Tanks (MBTs) and Combat Vehicles Reconnaissance Tracked (CVR (T)), the RAC has embraced the wider opportunities derived from a spectrum of platforms (Light Cavalry in Jackal, and on the horizon the STRIKE capability, within which AJAX will provide a multi-role and transformational platform). The adoption of



...the RAC has continued to adapt as the situations warrant, whilst retaining the core tenets.



AJAX will put the RAC at the heart of the STRIKE Brigade, and shape the British Army's (contemporary) thinking on Combined Arms Manoeuvre (CAM).

In a very similar vein to the RCAC, the RAC provides battlegroups and formations with a robust and agile capability to seize the initiative, generate situational awareness, and close with and defeat the enemy. The regiments are the Corps and the Corps is the regiments. Headquarters RAC, based out of the Armour Centre in Bovington, Dorset, has pioneered the creation of the RAC Council (a newly formed board of senior serving RAC officers established



**Challenger 2 (CR2) - A day on the ranges.** *Photographer: Mr Richard King ADSL MMC*

to provide internal advice and direction, and assist Col Commandant RAC in his leadership, in order to nurture the long term wellbeing of the RAC and assure the value of its contribution to Defence), which in turn has devised, developed and endorsed the Vision, Ethos and the Strategy for the RAC.

### **THE RAC VISION**

A RAC comprising of strong (regular and reserve) regiments and a broad External Regimental Employment (ERE) community of talented people, aligned together in purpose, mind-set and intent to deliver first class operational capabilities; in which the RAC speaks with a single coherent voice and employ a level of mutual cooperation that makes the RAC greater than the sum of its parts; in which the respective regimental identities are reinforced and recognised for the value they contribute to the moral component; in which the RAC understands its contribution to Defence, and act as a collective agent in promoting its capabili-

ties, emphasising how they integrate with other arms and the investment required in them to assure operational readiness and success.

### **THE ETHOS OF THE RAC**

The core tenets of the RAC are ROBUST1, AGILE2 and CAPABLE3. These qualities are part of the mind-set of every RAC Crewman and reflected in RAC equipment, training, and most of all, the RAC ethos.

The ethos of the RAC is fundamental to its delivery of fighting power, and spans all of its forms of mounted manoeuvre, in the various permutations of armour and armoured reconnaissance. It derives from the RAC's historic and modern roles. It is a golden thread, linked intrinsically to its purpose on the battlefield. It engenders a mind-set that enables the RAC, its regiments, and people to operate with confidence in unfamiliar circumstances with incomplete information, often having re-grouped. The overall effect is a quickness and independence of thought and action; the ability to

balance risk and seize the initiative; and to do so working with confidence, with small teams, and acting in accordance with minimal direction and within the spirit of mission command.

The style of leadership is central to the RAC ethos. It is typified by a light touch, based on mutual respect and the fact that what each individual does is much more important than who they are. In a high tempo battle or a reconnaissance mission at reach, a fair decision now, guided by instinct and experience, is better than a perfect one too late. And true to the principles of mission command, this leadership style has the effect of empowering commanders to make critical decisions without prior reference to a superior. However, this benefit must be based on a thorough understanding of higher commander's intent, enabled through rigorous planning and delivery of orders.

This spirit of empowerment translates to the internal dynamics of the crew, where a strong bond develops through



**ABOVE: CVR(T)**

*Photographer:  
Cpl Pete Brown*

**LEFT: Joint adaptable  
and versatile - This is  
the future.**

*Photographer:  
Shane Wilkinson*

the mutual trust that results from serving as a small team on a mounted manoeuvre platform. The best RAC crews – comprised of fit, robust, confident and intelligent

soldiers, possessing the technical skills and determination necessary to fight the platform through challenging conditions or in reversionary modes – are those in

which tasks are shared as much as possible and each crew member contributes to the commander's situational awareness, recognising that the latter is a key determinant of the crew's survival as well as its effectiveness.

Tactical skill in the fast moving, wide-ranging battlefield in which mounted manoeuvre capabilities are typically employed requires a distinct set of characteristics. Understanding of ground and the ability to read the battle are important to any commander, but essential in mounted manoeuvre. Combined with initiative, intellectual agility and deep professional understanding, this leads to the ability to identify and exploit the fleeting opportuni-



**...exemplar application of the British Army's Values and Standards and the Army Leadership Code is fundamental to the RAC ethos.**

ty in complex and continually changing situations. This requires stamina and robustness, both physical and mental. It demands absolute mastery of troop, squadron and battlegroup tactics, techniques and procedures, rehearsed to the extent that the challenge of execution lies solely in adapting to the operational situation.

Putting the RAC ethos into practice cannot be taken for granted; the dependencies are high. While every member of the crew must be individually competent, it is the collective competence between crews and throughout the chain of command that give a mounted force its edge. Critically, the level of independence required at the lowest level within the RAC, and the associated light touch it exhibits, requires the highest standard of self-discipline, leadership and inclusive professionalism; exemplar application of the British

Army's Values and Standards and the Army Leadership Code is fundamental to the RAC ethos.

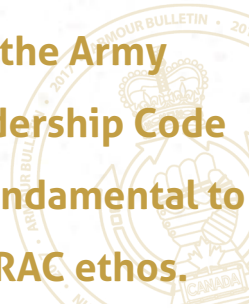
**THE RAC STRATEGY – 'RAC FIRST'**

There are a myriad of benefits to be gained from a stronger, more unified, more confident RAC. These are benefits for the British Army, to the RAC regiments and people. The British Army will benefit from a unity of effort that enhances its deployable capabilities. The RAC regiments will benefit from stronger mutual support and more coherent representation. RAC personnel will benefit from greater opportunity, stronger representation, and a greater sense of shared professional pride.

For the benefit of Defence, the RAC must be bolder in outlining the value and utility of its capabilities. The RAC contributes to the full range of military options



Prototype of the transformational platform - AJAX. Photographer: Richard Watt



available to both the political masters and to the operational commanders. From Major Combat Operations to Defence Engagement, the RAC delivers across the spectrum, be it through armour, armoured cavalry, light cavalry, C-CBRN AS&R, or public duties. The task of championing the current capabilities and articulating how they can be best enabled will be significantly better achieved by a strong and coherent RAC<sup>4</sup>.

This approach does not challenge fundamental principles, but it does require a change in behaviours, and some new mechanisms to bring about coherence and to realise certain opportunities. In order to gain the clout that reflects the collective potential, the RAC must be more collegiate, harness its strengths and opportunities for the greater good of the RAC, and speak with one voice.

'RAC First' will be implemented across a series of six lines of development:

- **Operational purpose and the RAC Ethos.** As the British Army resets itself for contingency, the RAC must prepare for operations in its primary roles for the first time in a decade. The RAC must engage proactively and coherently with this demand. It must reclaim its mounted excellence. As the RAC does this, it will continue to draw on the success to date and future potential of its integrated regular-reserve forces. Tightly linked to the operational purpose is the ethos – this will be the 'golden thread'.
- **Recruit as one Corps.** The RAC will adapt its current model of recruiting to be more unified in order to maximise the overall inflow of RAC officers and soldiers. Doing this intelligently will deliver the important secondary effect of educating the rest of the British Army on RAC capabilities.
- **Proactive talent management.** The RAC has initiated a proactive and holistic approach to managing all levels of talent. This will involve furnishing the whole 'ecosystem' that supports the RAC by placing the right people in the right places to support its people, to gain influence, and to enable the capa-

bilities to meet the needs of Defence. This approach will recognise the needs of the individual, improve the system for career advice, increase opportunity and improve retention across the Corps.

## The Vision and Ethos are critical elements within the overall RAC strategy.

- **Foster a strong corporate identity.** The RAC will become more unified in mind-set and behaviour. To achieve this it will identify the common ground between capabilities and among regiments, involve the ERE community more closely, and reinforce the 'Home of the RAC'. With strong coherent messaging and reinforcement of the RAC brand, the RAC will restore its collective confidence and instil a sense of collective pride down to the lowest level.
- **Invest in the relationship with the Armour Centre (ARMCEN).** The RAC has a high dependency on ARMCEN to train its recruits and deliver RAC career courses. In turn, ARMCEN (notwithstanding that it has significant training audiences beyond the RAC) relies on the RAC for significant parts of its professional conscience and training capability, in particular for high quality instructors.
- **Speak with one voice.** The new RAC Council provides clear lines to take on important issues, thus enabling

coherence in the messaging, and the ability to achieve influence over important decisions of interest to the RAC and its ability to deliver for the British Army. Instructions on these lines to take, as well as routine notifications, are promulgated across the RAC community. A clear understanding of the RAC in terms of both capability and cap badge, for the internal as well as external audiences, will contribute to this coherence.

### SUMMARY

'RAC First' seeks to empower the RAC to gain in coherence and strength, but without changing the fundamental basis by which the Corps and its regiments exist. The Vision and Ethos are critical elements within the overall RAC strategy. The strategy, on implementation, will deliver a unified sense of purpose, borne out of collective responsibility and mutual cooperation. It will require the whole Corps to lean into this approach, adopt a collegiate mind-set, and adjust behaviours accordingly. The initial effects will be realised as a series of tangible measures is implemented. It will take longer for the effects to embed deeply and become self-sustaining. Crucially, the 'RAC First' approach will enable the Corps to influence its direction of travel, set better conditions for itself, enhance its resilience and raise the value of its contribution to the Army.

### ENDNOTES

<sup>1</sup> *ROBUST: Physically and mentally prepared to succeed in complex and continually changing situations.*

<sup>2</sup> *AGILE: Determined to seize and exploit fleeting opportunities.*

<sup>3</sup> *CAPABLE: Tactical and technical experts in all forms of mounted manoeuvre.*

<sup>4</sup> *In conjunction with HoC Ground Manoeuvre as the Capability Sponsor for all RAC capabilities.*

### ARMOUR BULLETIN

# LETTER TO THE EDITOR

BY | MAJOR (RET'D) MR MCNORGAN, CD, MA

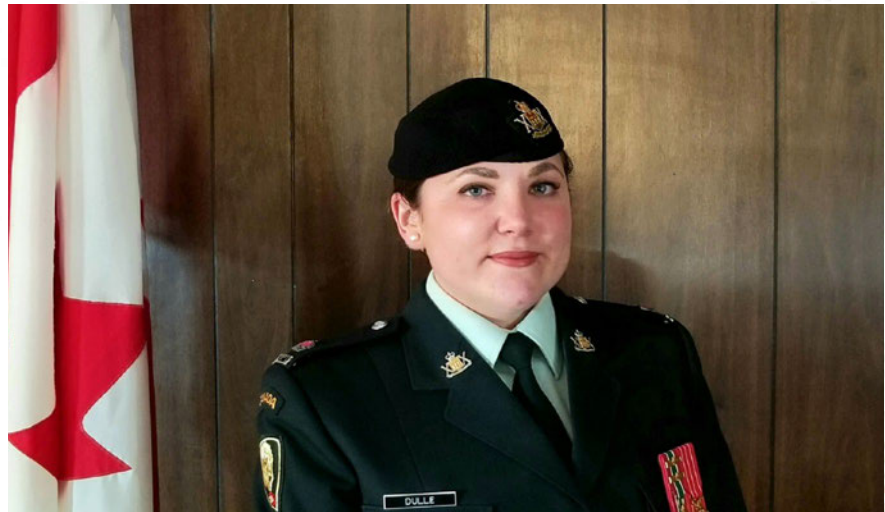
Dear Sir,

I wanted to bring your attention, and that of the Corps, to recent developments in one of Canada's western armoured regiments.

Their motto is 'Esprit d'initiative', which translates into English as 'spirit of initiative', and initiative is what this unit is presently displaying. In 1970, as a function of the unification of the Canadian military, The Saskatchewan Dragoons were placed on a restricted establishment of just one squadron to be commanded by a major. It was, and remains, the sole Canadian armoured unit operating under this handicap. At the time the restriction was imposed, the government's plan was to reduce the numbers of Canada's army reserves. Now, with the strength of the reserves at around just 20,000, the government's aim is to increase those numbers. The Saskatchewan Dragoons are attempting to regain the full regimental status that they lost over 40 years ago. Leading this struggle is the present commanding officer, Major Gillian Dulle, CD. Major Dulle is noteworthy for another reason: she is the first female officer to command a Canadian armoured unit.

A native of Moose Jaw, Major Dulle joined her regiment in 2003 as a Trooper and was commissioned in 2006. Since then, she has commanded two organisations and has seen active service during two tours in Afghanistan.

In addition to normal regimental appointments, she also served extra-reg-



imentally as the Operations Officer for 17 Wing Detachment at Dundurn, Saskatchewan. During the final three months of this three-year period, she was appointed the Detachment's Acting Commanding Officer. On 14 May 2016, she was promoted to her current rank and appointed to be the 19<sup>th</sup> Commanding Officer of The Saskatchewan Dragoons.

Major Dulle's operational experience includes service as a platoon commander for the Psychological Operations (PSYOPS) Team in Kandahar, Afghanistan on Task Force 3-09. While commanding the PSYOPS platoon, she earned the Canadian Expeditionary Force Command Commander's Commendation for her leadership and actions during her tour. She returned to Kabul, Afghanistan on a second tour as a men-

tor at the Afghan National Army Command and Staff College during Operation ATTENTION Roto 0. This was part of the NATO effort to assist the Afghan national security forces in transitioning to full responsibility for security throughout the country after most foreign troops had been withdrawn. During this tour she earned the Task Force Commander's Commendation.

Major Dulle is employed at Cameco, a uranium mining company, as a Project Controller and is also attending Athabasca University to obtain her Bachelor of Commerce (Accounting) through distance education. She resides in Saskatoon with her husband Brennon and their daughter Kyia.

*Major (ret'd) MR McNorgan, CD, MA  
RCAC (Association) Historian*

ARMOUR CORPS AND THE  
**ARMY OPERATIONS COURSE**

BY | **LCOL DALE CHILDS (RCD), LCOL ANDRÉ CORNETT (12E RBC),  
LT COL JAMES FARRER (ROYAL LANCERS), LTC ANDY WHITFORD (US ARMY),  
MAJ ROBERT "HOGG" MCKENZIE (LdSH(RC)) AND MAJ JEFF MONAGHAN (RCD)**

The last decade has seen significant change in the Royal Canadian Armour Corps. The divestment and then resurgence of armour (i.e. the Leopard tank) saw a change in the principal focus of the Corps from armour to armoured reconnaissance. While logical from an establishment perspective (i.e. distribution of personnel and equipment), one outcome has been the continual search for the proper balance between consideration of armour and armoured reconnaissance. This search for balance has also manifested effects outside of the Corps, a case in point being the Army Operations Course (AOC) conducted at the Canadian Army Command and Staff College (CACSC) in Kingston. While the high intensity, combined arms nature of the course aids in emphasizing the importance of armour to all Army students, Armour students with little or no armour experience have proven ill-equipped to exploit this opportunity. Given the educational environment of the course, the Armour students represent the best ambassadors of the Corps. Their inability to properly demonstrate the contributions of the Corps and its members has the potential to affect entire tranches of future Army leaders. Within this article, the authors will attempt to articulate the scope of the

resulting credibility challenge while providing concepts that the Corps, Regiments and future students can leverage for their mutual advantage.

This article will provide a brief outline of AOC and a summary of the typical Armour student's strengths and weaknesses identified by the authors. This article will conclude with a number of broad recommendations aimed at improving the performance of Armour students and eliminating the perceived credibility issues. The authors will focus on defining the issues rather than providing detailed solutions, as there are many options to address these issues. This article will not address how AOC can be modified for a number of reasons. Finally, this article will not comment upon the merits of the current duality within the Corps in favour of focusing on the credibility challenge.

Whether delivered to Regular or Reserve Force students, the focus of AOC remains leadership, understanding the contemporary operating environment, application of Army doctrine and operational plans, staff duties, command in land operations and the conduct of full spectrum operations at the battlegroup and brigade levels.

For the Regular Force the course is divided into three parts or tutorials:

Tutorial One is delivered via distance learning, and provides the doctrinal foundations for land operations and introduces mission analysis; Tutorial Two, focused on battlegroup operations, contains the individual estimate and is punctuated by three computer-assisted exercises (CAXs) focused on offence, defence and urban operations; and Tutorial Three, focused on brigade operations, contains six exercises at the brigade and divisional levels within a joint, interagency, multination and public (JIMP) environment and replaces the individual estimate with the collaboration of the Operational Planning Process (OPP). The high intensity nature of most activities provides an immediate appreciation of the value

**QUALITIES OF THE IDEAL ARMOUR STUDENT**

- Aggression
- Decisiveness
- Boldness
- Mental Agility
- Unquestioned Professionalism
- Supportive to Peers

of anti-armour capabilities, armour in particular. Unfortunately, this appreciation is not always matched with a strong doctrinal understanding which leads to a variety of errors in application. Armour is often reduced to weapon systems that are dispersed across infantry-centric structures regardless of the associated command and control and sustainment considerations, and in direct contravention of doctrine.

Thus, while AOC provides an outstanding opportunity to demonstrate the potential of armour, much of this potential rests with the proper application of doctrine by those involved. From a recce perspective, battlegroup operations clearly demonstrated the importance of battalion recce to decision making, fires and the ability to manoeuvre to positions of advantage. Ironically, this lesson is not continued during brigade operations and the focus shifts from the operation of the brigade recce squadron to focus on intelligence, surveillance, target acquisition and reconnaissance (ISTAR) planning. Ultimately, the brigade recce squadron is relegated to some form of economy of effort (e.g. flank security) based on a poor Intelligence Collection Plan (ICP) and a lack of comprehension of the potential of recce squadron. Throughout the course, the prevalence of unmanned aerial systems (UAS) becomes a crutch that enables students to personally resolve information gaps rather than properly plan. Thus, AOC represents tremendous potential to establish the relevance of the Armour Corps and to teach students from across the Army about the proper application of Corps capabilities. This potential is greatly affected not only by the actors but also the learning environment.

AOC strives to create and maintain an adult learning environment. This approach is predicated on a certain level of pre-existing experience and skills on the part of the students. As the course progresses, education is decreasingly provided by the Directing Staff (DS) and increasingly provided by coursemates within each syndicate. This environment functions optimally when students are experienced, curious, intelligent, hardworking and confident. When so enabled, the adult learning environment represents an unparalleled learning opportunity and each student becomes a



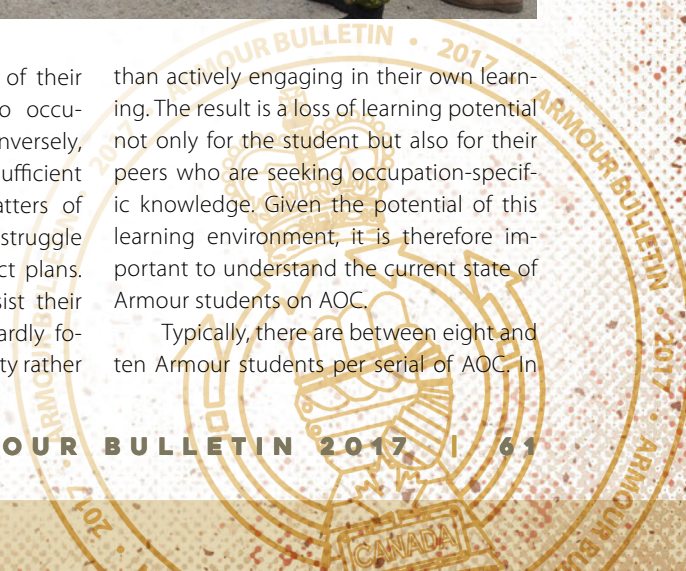
**ABOVE: AOC students conducting a mission rehearsal exercise. Photographer: Cpl Miller, CACSC**  
**BELOW: AOC students conducting a tactical exercise without troops (TEWT) in the Lansdowne area in support of battlegroup operations. Photographer: Cpl Miller, CACSC**



force multiplier in the education of their peers, especially with regards to occupational-specific knowledge. Conversely, students who arrive without sufficient experience or confidence in matters of their own occupation frequently struggle to create viable, doctrinally correct plans. Overwhelmed and unable to assist their peers, students can become inwardly focused and adopt a survival mentality rather

than actively engaging in their own learning. The result is a loss of learning potential not only for the student but also for their peers who are seeking occupation-specific knowledge. Given the potential of this learning environment, it is therefore important to understand the current state of Armour students on AOC.

Typically, there are between eight and ten Armour students per serial of AOC. In



terms of their experience and background, three quarters are likely to have a recon background with the remainder having a background in armour. At least one, but often two, Armour students per serial will either have little or no troop leading experience and are unlikely to return to the Field Force. Most students will be on their first extra-regimental engagement (ERE) and will have been in rank three to four years. The principle source of tactical experience will be employment as a troop leader within a squadron with up to a third of students likely to have experienced road to high readiness (RTHR) training (e.g. Exercise MAPLE RESOLVE). With regards to performance there is little difference from a natural distribution with 43% of Armour students finishing in the top third, 31% in the middle third and 26% in the bottom. Comparatively there are roughly even odds that Armour students will ever break the top ten on any given course, which are the same odds for the Engineers. The Infantry routinely dominate five of the top ten positions with the Artillery and Signals routinely capturing another position each. The remaining positions typically go to Intelligence, Logistics and Electrical Mechanical Engineers (EME) in descending order of

probability. This marks a significant departure from a decade ago when many serials were dominated by Armour students.

The challenges faced by contemporary students on AOC are ultimately derived from, or linked to, their level of experience. Most students have difficulty understanding the size and scope of battlegroup and brigade operations as they have likely only participated in operations at the sub-unit level. This difficulty understanding extends to the terrain. While they quickly demonstrate competence in the conduct of ground analysis (i.e. FLO-CARK), they struggle drawing deductions related to the impact of terrain on friendly and enemy manoeuvre. Their inability to properly conceptualize the size of friendly and enemy formations and how they will use and be affected by the terrain undermines the quality of deductions and plans related to manoeuvre. This, in turn, leads to difficulties properly identifying enemy and friendly schemes of manoeuvre essential to course of action development. These challenges can be aggravated or mitigated by the level of experience with which a student approaches the course.

Before exploring the relative strengths and weaknesses of Armour students, it

### ARMOUR STUDENTS STRENGTHS

- Manoeuvre
- Mental agility

### ARMOUR STUDENT WEAKNESSES

- Limited Tactical Experience
- Limited or No Armour Experience
- Limited Combined Arms Experience

is instructive to outline the ideal against which these students are compared. While these characteristics may be subjective, they are agreed upon by the authors and not particularly divergent from typical assessment of Armour Officers. Aggression, decisiveness and boldness feature prominently for a number of reasons. These are characteristics shared with the other Combat Arms with the fundamental difference being the mounted application. While the Infantry, for example, also demonstrate aggression and decisiveness, their fixation on the target or objective often differs from the scope of manoeuvre common to armour. Armour students are also expected to possess a degree of mental agility that enables them to integrate and synchronize multiple concurrent activities in time and space. This agility is a certain quickness and sharpness that enables their critical thinking and management of complex problems. This improves their ability to assimilate new information, form new connections, and therefore adapt to the complex and ambiguous. Finally, there is an expectation that Armour students act as ideal representatives of the Corps. In addition to unquestionable professionalism, such representation also includes a degree of occupational knowledge, confidence and passion that encourages coursemates to seek them out for advice and assistance. This final characteristic is absolutely essential to the value of the adult learning environment as it exists on AOC. When a



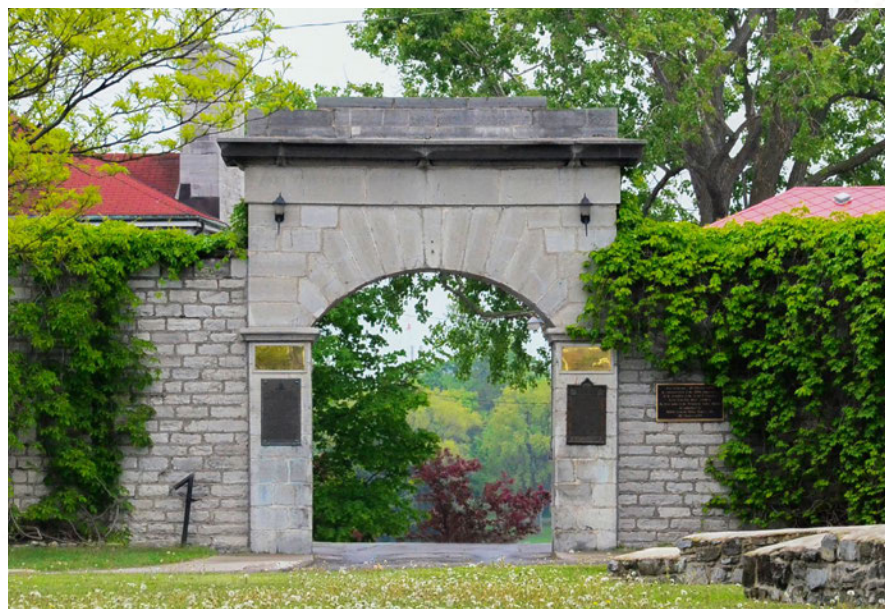
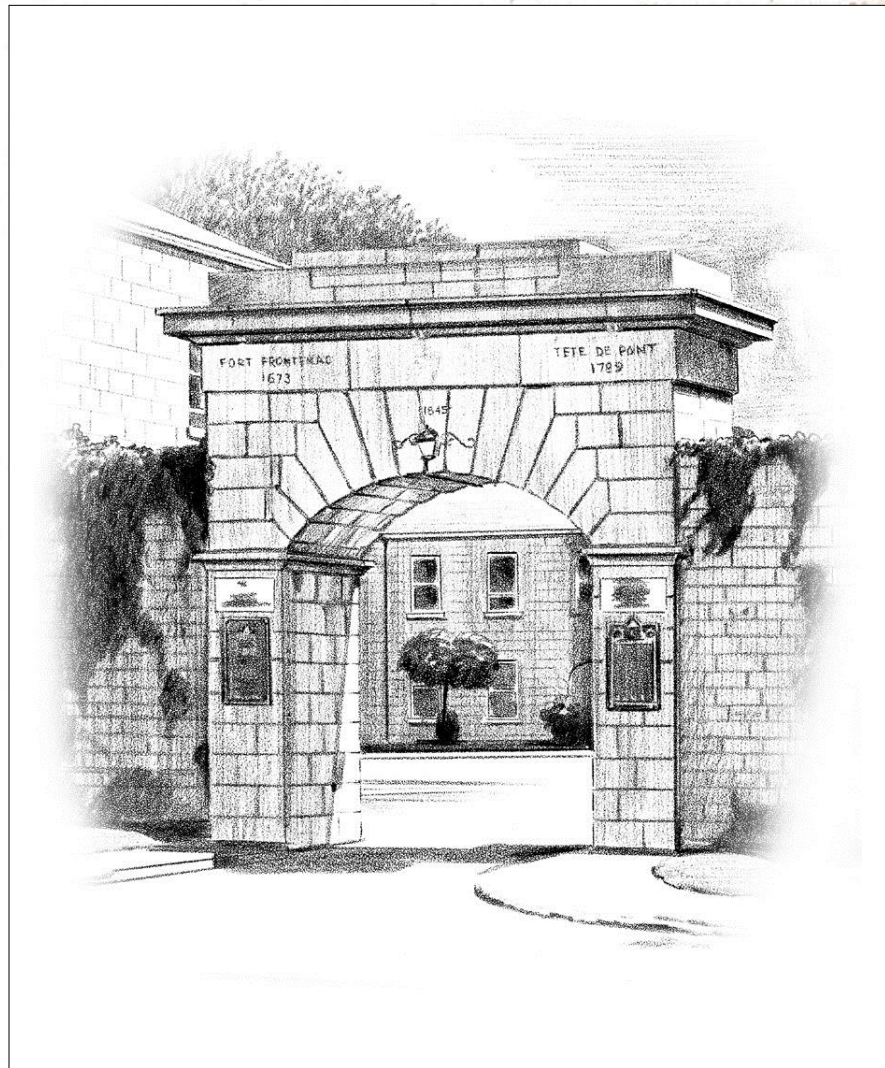
AOC students conducting a wargame in support of brigade operations.

Photographer: Unknown

student falls short of this ideal, it is not only their performance that suffers: confidence in the representatives of the Corps to steward those capabilities will also become undermined and with it, our credibility.

In terms of the generally observed weaknesses of Armour students, aggression, decisiveness and boldness are typically undermined by a lack of experience and confidence. As the students are little more than troop leaders, their experience is likely limited to operations within a squadron and are unlikely to have experience working on or with battlegroup or brigade staffs. As previously noted, three quarters of the students will not have armour experience, and thus be ill-prepared to actively discuss the employment of armour on a course that heavily favours high intensity, combined arms operations. While students with an armour background fair slightly better, their experience is likely limited to operations within a combat team context based on the Army training vital ground of the annual level five training and Exercise COMMON GROUND. Due to their limited experience, Armour students are frequently following vice leading the discussions about employment of armour which undermines the confidence necessary to be a bold and decisive leader. The transition to brigade operations and employment of the brigade recce squadron should provide a opportunity for those training in armored recce but, as outlined above, the generally poor application of ISTAR and limited understanding of the employment of the squadron leads to it be marginalized. That marginalization nullifies a significant portion of the experience most Armour students arrive with. While this situation appears dire, there are a number of noted strengths frequently demonstrated by the Armour students.

The DS have generally acknowledged a number of strengths that Armour students display relative to their peers. First among these strengths is a nascent understanding of manoeuvre. Among all students, Armour students demonstrate the best understanding of the use of ground as well as the combination of fire and movement – the essence of manoeuvre. While they also struggle to translate this nascent understanding to the battlegroup and bri-



Fort Frontenac's Gate. Photographer: Unknown



gade levels, they appear to have a better foundation compared to their peers. This appears to be greatly aided by experience with combat team operations and for the time and space typically associated with armoured recce operations. The armour students also tend to initially display better mental agility than their peers. This initial ability can trace its roots back to Developmental Period One training, especially for those trained in armoured reconnaissance. While they demonstrate this initial ability, they sometimes struggle to translate that mental agility into a generalized adaptability essential to the management the content and tempo of the course. As above, this is likely undermined by a general lack of experience.

Taking the aforementioned points together, the authors have identified a number of recommendations aimed at improving the credibility of the Armour Corps and the general performance of Armour students on AOC. Starting with the DS, it is clear that Armour DS selection remains paramount; instructors with the right experience, knowledge and aptitude need to be selected to teach on AOC. Given the challenges facing armour doctrine and its relative centrality to the curriculum, instructors with armour experience at the sub-unit level are essential. Specific to the students, consideration should be given as to when students attend AOC with a view of improving their overall experience prior to the course. While it is understood that sending first ERE Armour officers on AOC is the easiest solution, this has come at the expense of experience, student perfor-

### AIM OF AOC

"[AOC] will develop officers who will understand the doctrinal tenets of land warfare, manoeuvre warfare, the principles of mission command and the application of leadership within a command perspective. They will understand how to plan and conduct land component Full Spectrum Operations (FSO) at the tactical level in a joint, interagency, multinational and public (JIMP) environment. Upon achieving this QS officers will have the requisite competencies to serve both as sub unit commanders and as staff officers in Unit, Task Force and Formation headquarters."

mance on course and the credibility of the Corps. Students with broader experience to include armour operations, combined arms operations, exposure to battlegroup and brigade planning and an improved understanding of the ISTAR process prior to AOC will likely do demonstrably better in that learning environment. Of the points listed, the one immediately available for exploitation by the Corps is ISTAR.

ISTAR is featured prominently within the course but is inevitably dominated by the intelligence function given the perceived subordination in the process (i.e. the Intelligence Collection Plan (ICP)). Because it is new to nearly all students, they struggle to understand how ISTAR planning is conducted beyond basic prioritization of tasks and management of UASs. The truth is that ISTAR is not taught particularly well on AOC for a number of reasons. As there is no clear "ownership" of ISTAR from a Corps or Branch perspective, there is not always a designated DS there to ensure the proper emphasis. It inevitably defaults to an intelligence-led process which may be

marginalized by those who may not possess the experience to properly apply it. This, in turn, does not allow the students to properly use decision support materials or conduct manoeuvre that is driven by recce. The authors do not go so far as to recommend that the Corps take ownership of the ISTAR process, but rather that those trained in armoured recce come armed with a solid understanding as to how the process works within a battlegroup and brigade context. In particular, stressing the limits of the brigade's organic recce and the need to plan and prioritize will help the students both plan and execute operations. By association, such an understanding should greatly improve the students' understanding of manoeuvre, as much of ISTAR planning is linked to the deductions derived from the terrain analysis. This should especially improve the students' understanding of enemy manoeuvre to include how they will advance or withdraw, how they will need to be shaped for a particular effect and what cues the ISTAR plan will need to possess in order to confirm or deny enemy actions.

With respect to the Armour Corps at large, the perception among the authors is that there is a limited understanding of the employment of armour. This deficiency exists along two fronts. First, there is the general lack of armour experience highlighted throughout this article. Second, there is a general lack of understanding as to how an armoured regiment (i.e. tank regiment) conducts operations. Both of these deficiencies could be addressed through a variety of professional development activities, but the latter is of particular importance to the leadership. While there may currently be no Army plans to deploy an

### AOC PERFORMANCE OBJECTIVES (PO)

- PO 201 – Lead Subordinates and Staff Planning Teams
- PO 202 – Operate in the Contemporary Operating Environment
- PO 203 – Apply Army Doctrine to Tactical and Operational Plans
- PO 204 – Execute Staff Duties
- PO 205 – Conduct Battle Group Level Full Spectrum Operations (FSO) within a Brigade Group Context
- PO 206 – Conduct Full Spectrum Operations within a Brigade Group and Formational Level Task Force Headquarters Context
- PO 207 – Apply Command Theory in Land-Centric Operations



armoured regiment into operations, either as the heart of a multinational force or as part of a Canadian-led brigade group, it would be a modest professional development investment to maintain this skill set, which, in turn, could be leveraged to augment professional development across the Corps. CACSC has the benefit of having allied instructors from both the United States and United Kingdom who are able to assist in this regard, but there should be an integral understanding within the Corps. Such

a focus would have the added benefit of augmenting our understanding of battle-group operations, thereby better positioning regiments for employment against key battlegroup assignments operationally.

Maintaining and even increasing the relevance of the Armour Corps in both the current and any future operational environments requires continual effort across a number of fronts and activities. AOC is an outstanding tool to teach entire generations of future Army leaders the value and

proper employment of armour. In order to ensure that all the professionals that pass through the Command and Staff College understand how to best employ armour and recce, the hand-picked Armoured DS assigned to CACSC as well as the enthusiastic and prepared Armoured students must serve as credible representatives of the Corps. In turn, they will infuse the entire Army with a vision of Corps' critical role in any unit the Canadian Armed Forces needs to fight and win anywhere in the world.



## 2017 ARMOUR BULLETIN

BACK ON DUTY –

PERSISTENT SURVEILLANCE  
CAPABILITY

BY | MAJ J.F DUFOUR

In June 2018, the annual summit of the seven largest industrialized countries—the G7—was held at La Malbaie, in the Charlevoix region of Quebec. The entire security detail for this event was obviously extremely rigorous and left nothing to chance. Police resources, as great as they are, could not handle all contingencies. Military resources were therefore assigned to this security operation and to the security centre: the Persistent Surveillance Capability was back on duty.

Acquired and deployed in Afghanistan for Operation ATHENA, Persistent Surveillance Systems (PSS) has increased security around forward operating bases by enabling routine surveillance, and the detection and neutralization of threats, thereby increasing the level of security for our troops.

The Persistent Surveillance System (PSS) is a surveillance system that was procured to assist in the detection of improvised explosive devices (IEDs) around combat outposts of forward operating bases (FOBs). The system was purchased under Phase One of the Enhanced CounterImprovised Explosive Devices project L1112. The project received Treasury Board (TB) Preliminary Project Approval (PPA) on April 17, 2008, which authorized the immediate off-heshelf procurement of the PSS, along with several other counter-improvised explosive device (CIED) capabilities.



Following the support provided for Operation ATHENA, the PSS Capability was returned to Canada and integrated into the Managed Readiness Plan (MRP), despite the absence of a Force Employment Concept (FEC) or integration into an existing Capability Development Record (CDR). The Royal Canadian Armoured Corps was tasked as a centre of excellence with the intent of utilizing the Armour Primary Reserve (PRes) as the basis of Force Generation (FG). The systems have been in storage since they were returned from Afghanistan to the manufacturer, Rheinmetall Canada in Saint-Jean-sur-Richelieu.

As the PSS was procured to serve a specific purpose, no subsequent force

development (FD) work was done to it that would have properly integrated it into the Canadian Army (CA) inventory. Following Operation ATHENA, the PSS was integrated into the Canada's contribution to the Canada First Defence Strategy (CFDS) and subsequently included in the revised CA structure. Officially included in the Force 2013 and Waypoint 2018 structures, there has been no formal concept of employment and no sufficiently rigorous analysis has been conducted to determine the full potential of the PSS.

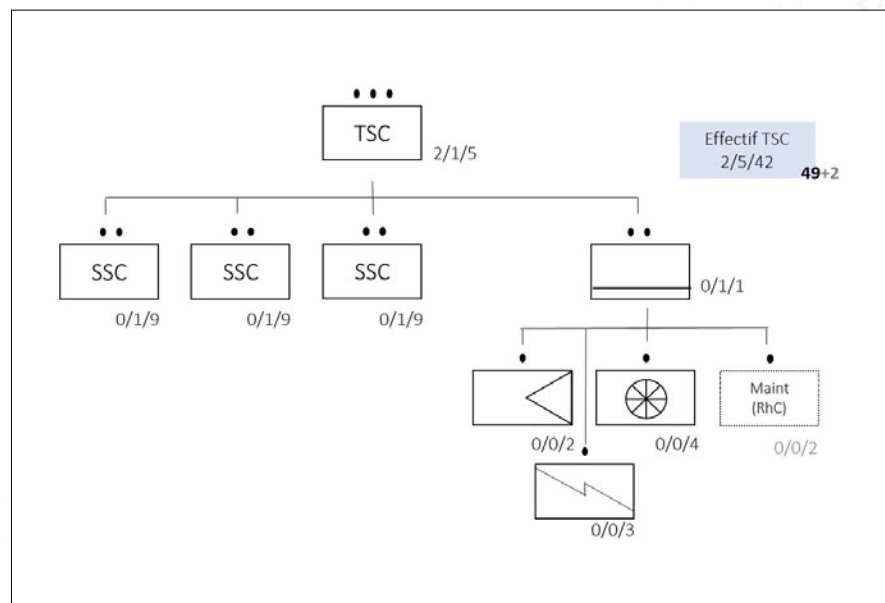
In order to overcome this shortcoming and establish a concept of employment for the PSS, the CA published in spring 2017 a master implementation

plan (MIP), should one be needed. Thus the 35 Canadian Brigade Group (35 CBG) was tasked with completing the full activation cycle of the PSS according to the MIP. As a result, a project team was created to empower the capability and conduct an exercise focused on the deployment and use of the PSS surveillance capabilities. Finally, once the exercise was completed, the team was to collect lessons learned in order to better understand PSS capabilities and ultimately contribute to developing a concept of employment for that capability.

That work began in May 2017 with the programming of an instruction program for training surveillance operators, followed by a field training exercise in August in order to feed the data and lessons learned about the process of drafting a concept of operations for the capability. In all, 35 reservists participated in the project, which operationalized a system and ultimately produced in fall 2017 a final report on the ins and outs of the capability. A generic operating concept was thus proposed: *PSS capabilities are positioned to dominate the entire area of operations while covering the terrain up to its physical limits of observation from deployment sites. This allows for SURVEILLANCE in support of the IS-TAR plan while being able to SUPERVISE upon request specific elements or activities in our area of operations. In the case of detection (DETECT), the system's capabilities are used to contribute to the targeting plan or dynamic targeting in order to project and direct efforts toward observed targets.*

Our experience with the system could have ended when the final report was delivered, but in August 2017, the 2nd Cdn Div G5 received a delegation of the Integrated Security Unit (ISU) attached to the G7 Summit at Base Valcartier to demonstrate various sensors available in the CA inventory. Civil authorities subsequently showed an interest in deploying persistent surveillance systems in support of the surveillance plan during the Summit. To ensure our ability to support the police operation, a system was deployed at various sites in the Charlevoix region in October 2017 and, following that reconnaissance, the partners confirmed their intention to integrate that resource into their security plan.

Upon request from the police authori-





ties, several challenges had to be addressed in order to create a coherent capability, operationally ready for employment and consisting of reservists ready for deployment in June 2018. Therefore, 55 reservists were activated in January 2018 to form the core of the capability and receive instruction on the surveillance systems, but also on other capabilities necessary for full implementation of the capability, such as courses for drivers, communicators, forklift operators, etc. In addition, all members had to complete their IBTS in addition to passing the predeployment operational readiness program. In the end, more than 200 new qualifications were attributed between February and April 2018. As a result, the surveillance troop underwent a four-week collective training program to enable them to acquire expertise and to professionalize the capability in their surveillance tasks. Moreover, standard operating procedures (SOPs) were drafted in support of activities related to persistent surveillance:

In organizational terms, a persistent surveillance troop (PST) was created consisting of three surveillance systems, a command post and an integral support element. The aim was to ensure maximum

autonomy of this new capability while recognizing that its deployment requires considerable logistic effort, so the troop stores were drawn from the 34 and 35 CBG with the support of the 5 CMBG. The troop was commanded by a junior officer, in this case, an Armour Lieutenant.

Support for police partners included real-time transmission of a motion imagery stream from each of the troop sensors to the unified command centre. This element has been a major challenge in itself: enabled by MPU-5 VHF radio (recently acquired by the Army), the transmission of clear and functional imagery streams to the troop CP had not been tried before. This required painstaking and constant work by the 35 CBG transmission service, but the results were far beyond our and our partners' expectations.

The surveillance troop in the Charlevoix region was deployed from May 30 to June 10 and, once the capacity was fully operational, it was integrated into the surveillance plan of the integrated security unit. Surveillance was carried out from June 5 to 10 and, although no significant event marked the security activities surrounding the Summit, this relatively pro-

longed period of operation allowed for operational experience in the field and a runthrough of the capacity's SOPs.

With the G7 Summit over, the capacity was decommissioned in mid-June, the systems were returned to the manufacturer, and the equipment and personnel went back to their respective units or formations. The experience of setting up a force has confirmed the capability of the Primary Reserve to plan and conduct a PSS activation cycle, to participate autonomously in an operation, and to contribute unique and enabling capabilities to such an operation. The future of this capability now depends on the establishment of a permanent base that will mobilize the systems in a timely manner in order to quickly deploy the capacity in national or expeditionary theatres of operations, in addition to using new technologies that will allow us to carry out the same tasks with much more robust and flexible components.

Lastly, the finding is clear: persistent surveillance is an indispensable component of a rigorous surveillance plan and actively contributes to the protection of troops and infrastructures at home and abroad.

## ACSV

# THE PROJECT

PAR | MAJOR MARK MCNEIL, CD, PMP

The Canadian Army's current fleet of Armoured Combat Support Vehicles (ACSV) is based on a mixed fleet of M113 Tracked Light Armoured Vehicle and Light Armoured Vehicle II (BISON platforms. Commonly referred to as the 'work-horses' of the Canadian Army, the ACSV fleet is the

have already been life-extended and have exceeded their expected end of service life; however, with much ado and credit to our RCEME brethren, the fleet continues to serve the Corps today. However, in recognizing the weary state of the ACSV fleet, the new Defence Policy has directed

on developing the rationale for what the project will deliver. Early engagement with the Army has already offered an indicative ACSV Project scope statement:

The ACSV project intends to deliver a protected support vehicle to sustain the Canadian Army light and heavy armoured



Figure 1 – Roles of the ACSV Fleet

<b>BISON</b>	<b>Present Day ACSV Fleet</b>	<b>M113 TLAV</b>
Entered service 1990		Entered service in 1964
<ul style="list-style-type: none"> <li>• <b>ACSV Roles:</b></li> <li>• Command Post</li> <li>• Ambulance</li> <li>• Mobile Repair Team                             <ul style="list-style-type: none"> <li>• Electro-optics</li> <li>• Weapons</li> <li>• Vehicle</li> </ul> </li> <li>• Mobile Recovery Team</li> <li>• Electronic Warfare</li> <li>• Air Space Coordination</li> <li>• CBRN</li> <li>• Section Carrier</li> </ul>		<ul style="list-style-type: none"> <li>• <b>MTVL Roles:</b></li> <li>• Command Post</li> <li>• Ambulance</li> <li>• Mobile Repair Team                             <ul style="list-style-type: none"> <li>• Electro-optics</li> <li>• Weapons</li> <li>• Vehicle</li> </ul> </li> <li>• Mobile Recovery Team</li> <li>• Engineer</li> <li>• Fitter</li> <li>• Meteorological</li> <li>• Section Carrier</li> </ul>

'unsung hero' that enables recovery, provides medical support, supports command and communication elements as well as many other roles in support of the F-echelon.

The current ACSV fleet is tired. Over the years, the fleet has been repeatedly re-rolled, re-configured and, in some cases, such as the M113, been totally rebuilt. Indeed, both the M113 and Bison platforms

Initiative 36; which mandates the Army to replace the family of Armoured Combat Support Vehicles (ACSV).

A snapshot of the Canadian Army's ACSV fleet is shown in Figure 1. As stipulated in the Defence Policy, Directorate of Land Requirements is positioning to initiate the ACSV Project to implement and deliver the future ACSV capability. The project is in the early Identification Phase, focusing

fighting vehicle fleets on domestic and expeditionary operations. It will be a general-utility combat support vehicle that will fulfill a wide variety of support roles on the battlefield, including, but not limited to, protected ambulance, command and control, engineer, and maintenance repair teams. It will provide a high degree of maneuverability and protection to its crew and payload.

Pending operational research findings and an analysis for future force structure requirements, the ACSV project intends to deliver a fleet of 300-350 modular ACSV based on a common platform that will include several variants (ambulance, recovery, command post, engineer, etc...).

It is not by mistake that the scope statement is leaving room for some interpretation. We know it is replacing a well-defined fleet capability, but the environment for this capability has, and will, continue to evolve. As such, the ACSV project is expected to be a challenging and complex endeavour as it attempts to resolve and define the mixed fleet of capabilities that it is mandated to replace.

### FAQS - ACSV PROJECT

#### How many?

A question often asked is how the fleet quantity is derived. The estimated fleet figure is an early estimate based on our current force structure and a bit of speculation about how our force structure will evolve in the near future. It is not final. Moreover, the project will embark on operational analysis to examine and take into consideration future operating environments, with a view of refining the fleet figures, and, perhaps more importantly, provide a rationalization to define the operation mix of the ACSV variants (Recovery, Ambulance, Command Posts...).

#### The Contenders?

The concept of a modular ACSV based on a common platform is of course raising lots of interest and curiosity. The fact is that a concept is just a concept that will require further in-depth operation analysis and requirements definition against how and where the army plans to employ the ACSV. While it's too early yet to define the platform (and many opinions are out there), the project is maintaining a 'technology watch' and is engaged with our allies to gain insight on their experience with the respect to ACSV capabilities. Most importantly, the ACSV requirements for each specific role will be influenced and shaped by the respective user community.

Certainly, a multi-rolled platform is envisioned with interest in key features

such as: Protection (crew survivability, Payload (with growth potential), Performance (i.e., mobility) and modularity (flexibility in roles). We are seeing this capability with our allies in platforms such as the Ger-

**While it's too early yet to define the platform (and many opinions are out there), the project is maintaining a 'technology watch' and is engaged with our allies to gain insight on their experience with the respect to ACSV capabilities.**

man-Dutch (Krauss-Maffei Wegmann/Rheinmetall) BOXER platform and the Finish Patria AMV (Armored Modular Vehicle).

As the project progresses, and the requirements are defined, an Options Analysis will be conducted to resolve a selection of potential contenders. The bottom line will see contender platforms measured against the Canadian Army requirements.

#### Tracks or Wheels?

That is always debatable. It is expected that the ACSV will approach the mobility requirements purposely not stating wheels or tracks; rather, the requirement will define the mobility capability required:

i.e., maintain a speed of 'x' kph road/cross-country or match the mobility of 'x' fleet.

#### Delivery to the field force?

The ACSV project has initially plotted rough project timelines with a tentative ACSV fielding date between 2025-2027. The seemingly distant date accounts for the conduct of a detailed Options Analysis, Testing, Trials, Validation of the preferred and selected Option and Industry Manufacturing, all of which are incorporated in the project approval process. The expectation is that the future ACSV will remain in service for a period of twenty-five years, operating until the 2050 timeframe.

#### Parting Shots

In closing, this article provides a bit of context from the Army's strategic project perspective, and must be considered as the ACSV project moves forward. The initiative to replace and procure a new family of ACSV will be influenced by combat support capabilities being introduced to the field force by the ongoing capital acquisition projects. The three projects that are anticipated to influence how the ACSV capability will evolve are as follows:

#### *Logistic Vehicle Modernisation (LVM):*

This project will replace the current CAF fleet of light and heavy trucks. (Implemented 2021/22)

#### *Enhanced Recovery Capability (ERC):*

This project will replace the current CAF fleet of heavy tow trucks with an enhanced capability to match the new, heavier vehicle fleets. (Implemented 2024).

#### *Medium Support Vehicle System (MSVS):*

This project will replace the CAF fleet of medium lift logistic trucks. (Entering implementation phase, 2019).

The limited combat support capabilities resulting from these three capital acquisition projects will require a holistic approach to define the overarching ACSV statement of requirements, the procurement quantity and the operational optimal mix of ACSV variants. Rest assured that the ACSV Project will endeavour to leverage those capabilities, and ensure that the ACSV is covering the combat support capability gaps for the Army.





**To inquire about starting a project contact**

**Army Learning Support Centre**

*+ Tac School Customer Service [ALSC@CTC](mailto:ALSC@CTC) Tac School@Gagetown*

*P-Gag.CTTCustSvcALSC@intern.mil.ca*